OFFICE OF
BUILDING TECHNOLOGY,
STATE AND COMMUNITY PROGRAMS

2000 International Energy Conservation Code

MEC*check*™

U.S. Department of Energy
Office of Codes and Standards

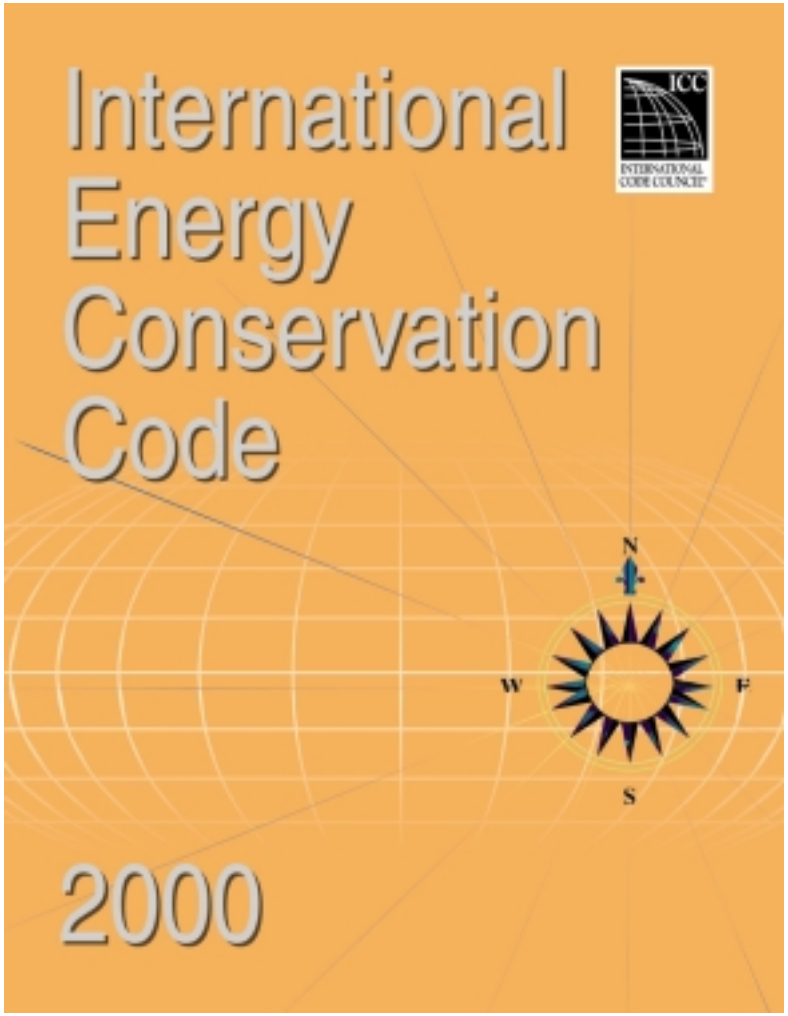
Using
MEC*check*™

Produced by the Pacific Northwest National Laboratory

Class Structure

- Overview of IECC
- Introduction to MEC*check*
- Basic Requirements
- Insulation and Window Requirements
  - Prescriptive Packages
  - Software
  - Trade-Off Worksheet
- Plan Review
- Field Inspection

What is the IECC?

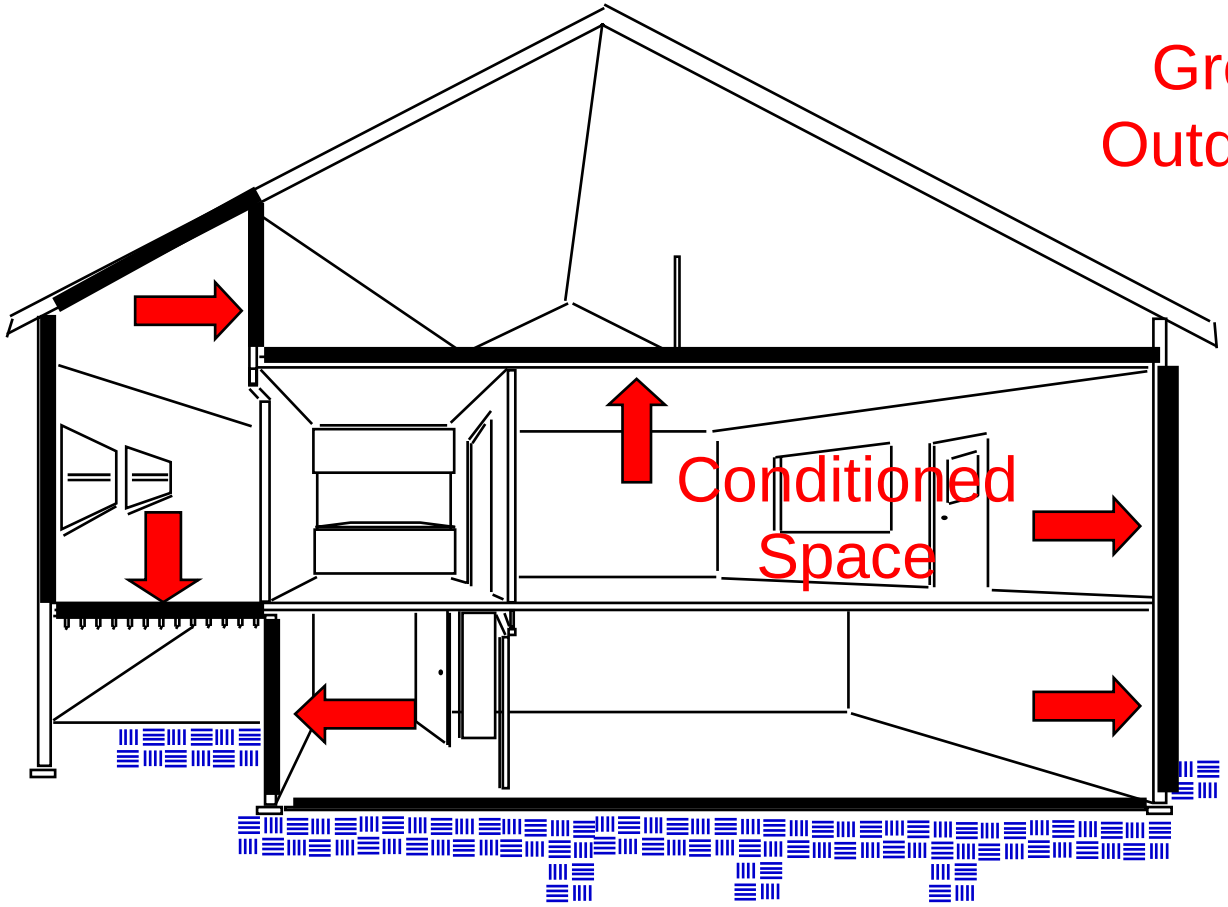


A REQUIRED MINIMUM LEVEL OF ENERGY EFFICIENCY IN NEW RESIDENTIAL CONSTRUCTION

Structure of the IECC

- Chapter 1 - Administration and Enforcement
- Chapter 2 - Definitions
- Chapter 3 - Design Conditions
- Chapter 4 - “Systems Analysis”
- Chapter 5 - “Component Performance”
- Chapter 6 - “Prescriptive Requirements”
- Chapter 7 - Building Design for all Commercial Buildings
- Chapter 8 - Design by Acceptable Practice
- Chapter 9 - Referenced Standards

Heat Loss Across Building Envelope



Chapter 4 - Systems Analysis

- Hourly annual energy use simulation to demonstrate that the proposed building uses equal or less energy compared to a “standard” building
- Usually done through complex software analysis
- Includes credit for renewable energy

Chapter 5: Component Performance

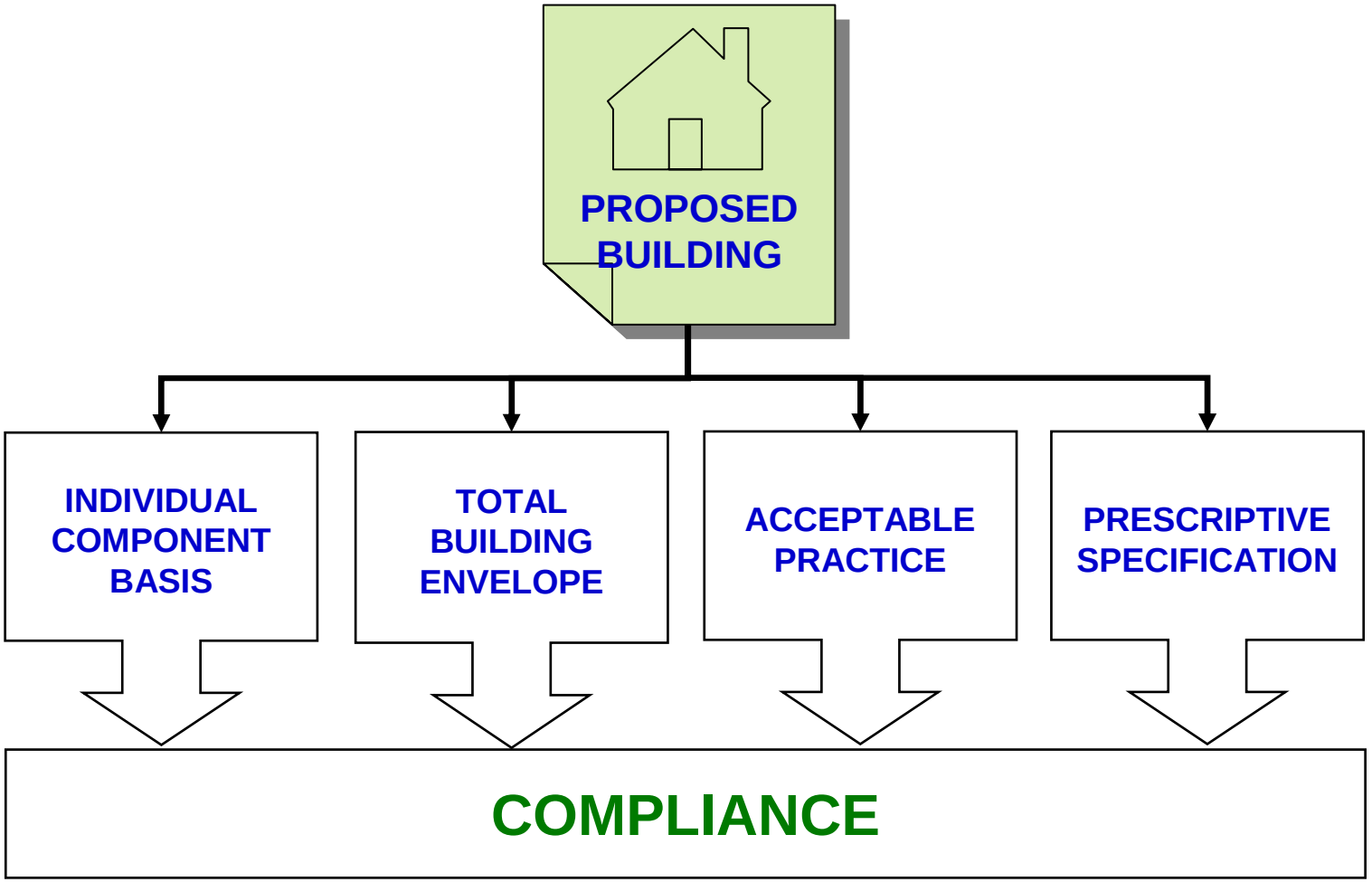
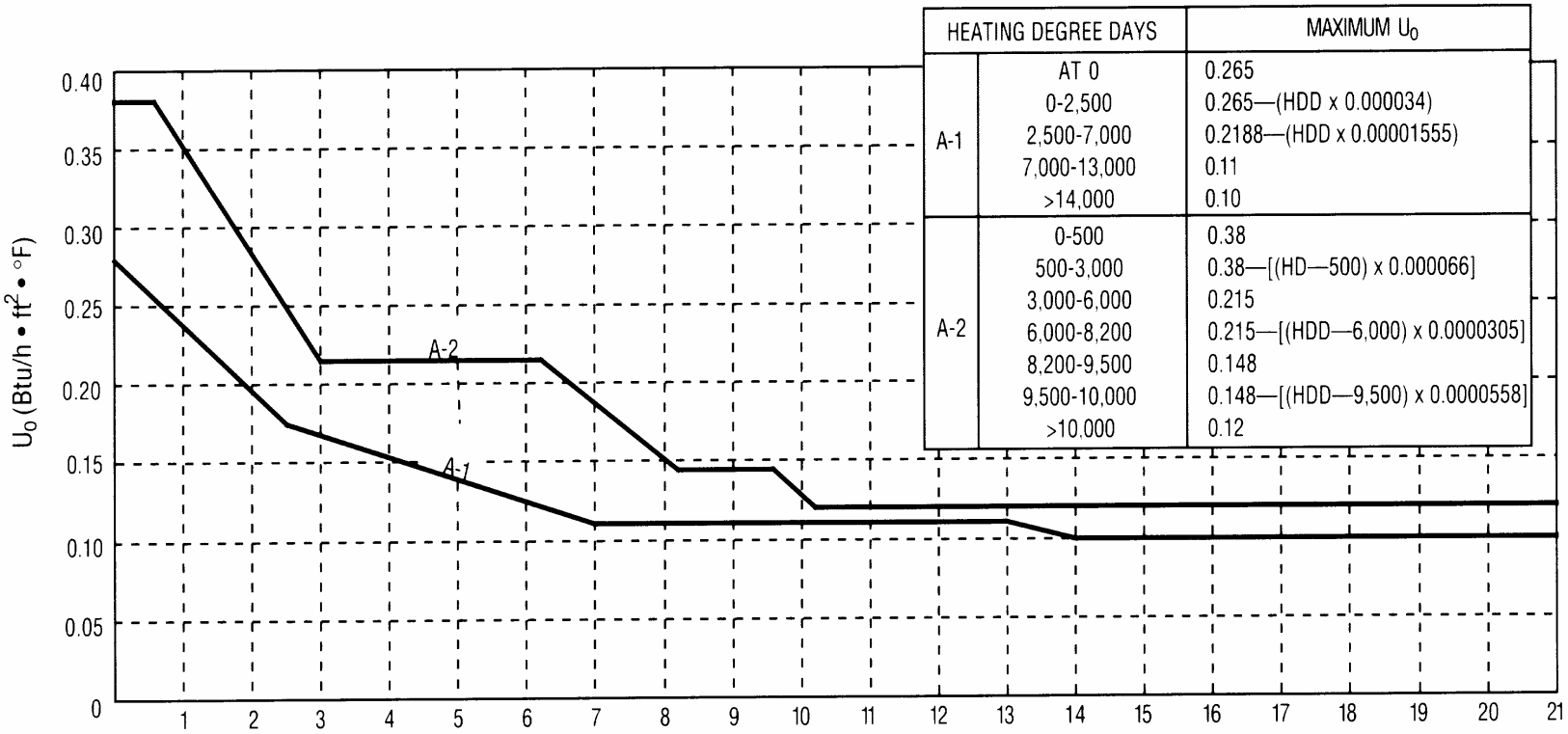


FIGURE 1

U_o WALLS—GROUP R BUILDINGS—HEATING



HEATING DEGREE DAYS		MAXIMUM U_o
A-1	AT 0	0.265
	0-2,500	0.265—(HDD x 0.000034)
	2,500-7,000	0.2188—(HDD x 0.00001555)
	7,000-13,000	0.11
	>14,000	0.10
A-2	0-500	0.38
	500-3,000	0.38—[(HD—500) x 0.000066]
	3,000-6,000	0.215
	6,000-8,200	0.215—[(HDD—6,000) x 0.0000305]
	8,200-9,500	0.148
	9,500-10,000	0.148—[(HDD—9,500) x 0.0000558]
	>10,000	0.12

For **SI:** 1 Btu/h·ft.^{2}·°F. = 5.678 W/(m^2·k), °F. = 1.8°C. + 32.

TABLE 502.2.4(3)
PRESCRIPTIVE BUILDING ENVELOPE REQUIREMENTS, TYPE A-1 RESIDENTIAL BUILDINGS
WINDOW AREA 15 PERCENT OF GROSS EXTERIOR WALL AREA

HEATING DEGREE DAYS	MAXIMUM	MINIMUM					
	Glazing *U*-factor	Ceiling *R*-value	Exterior wall *R*-value	Floor *R*-value	Basement wall *R*-value	Slab perimeter *R*-value and depth	Crawl space wall *R*-value
0-499	any	R-13	R-11	R-11	R-0	R-0	R-0
500-999	0.90	R-19	R-11	R-11	R-0	R-0	R-4
1,000-1,499	0.75	R-19	R-11	R-11	R-0	R-0	R-5
1,500-1,999	0.75	R-26	R-13	R-11	R-5	R-0	R-5
2,000-2,499	0.65	R-30	R-13	R-11	R-5	R-0	R-6
2,500-2,999	0.60	R-30	R-13	R-19	R-6	R-4, 2 ft.	R-7
3,000-3,499	0.55	R-30	R-13	R-19	R-7	R-4, 2 ft.	R-8
3,500-3,999	0.50	R-30	R-13	R-19	R-8	R-5, 2 ft.	R-10
4,000-4,499	0.45	R-38	R-13	R-19	R-8	R-5, 2 ft.	R-11
4,500-4,999	0.45	R-38	R-16	R-19	R-9	R-6, 2 ft.	R-17
5,000-5,499	0.45	R-38	R-18	R-19	R-9	R-6, 2 ft.	R-17
5,500-5,999	0.40	R-38	R-18	R-21	R-10	R-9, 2 ft.	R-19
6,000-6,499	0.35	R-38	R-18	R-21	R-10	R-9, 4 ft.	R-20
6,500-6,999	0.35	R-49	R-21	R-21	R-11	R-11, 4 ft.	R-20
7,000-8,499	0.35	R-49	R-21	R-21	R-11	R-13, 4 ft.	R-20
8,500-8,999	0.35	R-49	R-21	R-21	R-18	R-14, 4 ft.	R-20
9,000-12,999	0.35	R-49	R-21	R-21	R-19	R-18, 4 ft.	R-20

For SI: 1 foot = 304.8 mm.

Chapter 6: Simplified Prescriptive

- Residential Buildings, Type A-1
  - Glazing must be less than 15% of gross wall area
  - Must meet requirements of Chapters 4 and 5
- Residential Buildings, Type A-2
  - Glazing must be less than 25% of gross wall area
  - Must meet requirements of Chapters 4 and 5
- Climates > 13,000 HDD must use envelope requirements of Chapters 4 and 5

TABLE 602.1
SIMPLIFIED PRESCRIPTIVE BUILDING ENVELOPE THERMAL COMPONENT CRITERIA
MINIMUM REQUIRED THERMAL PERFORMANCE (*U*-FACTOR AND *R*-VALUE)

HEATING DEGREE DAYS	Maximum	Minimum					
	Glazing *U*-factor	Ceiling *R*-value	Wall *R*-value	Floor *R*-value	Basement wall *R*-value	Slab perimeter *R*-value and depth	Crawl space wall *R*-value
0-499	Any	R-13	R-11	R-11	R-0	R-0	R-0
500-999	0.90	R-19	R-11	R-11	R-0	R-0	R-4
1,000-1,499	0.75	R-19	R-11	R-11	R-0	R-0	R-5
1,500-1,999	0.75	R-26	R-13	R-11	R-5	R-0	R-5
2,000-2,499	0.65	R-30	R-13	R-11	R-5	R-0	R-6
2,500-2,999	0.60	R-30	R-13	R-19	R-6	R-4, 2 ft.	R-7
3,000-3,499	0.55	R-30	R-13	R-19	R-7	R-4, 2ft.	R-8
3,500-3,999	0.50	R-30	R-13	R-19	R-8	R-5, 2 ft.	R-10
4,000-4,499	0.45	R-38	R-13	R-19	R-8	R-5, 2 ft.	R-11
4,500-4,999	0.45	R-38	R-16	R-19	R-9	R-6, 2 ft.	R-17
5,000-5,499	0.45	R-38	R-18	R-19	R-9	R-6, 2 ft.	R-17
5,500-5,999	0.40	R-38	R-18	R-21	R-10	R-9, 4 ft.	R-19
6,000-6,499	0.35	R-38	R-18	R-21	R-10	R-9, 4 ft.	R-20
6,500-6,999	0.35	R-49	R-21	R-21	R-11	R-11, 4 ft.	R-20
7,000-8,499	0.35	R-49	R-21	R-21	R-11	R-13, 4 ft.	R-20
8,500-8,999	0.35	R-49	R-21	R-21	R-18	R-14, 4 ft.	R-20
9,000-12,999	0.35	R-49	R-21	R-21	R-19	R-18, 4 ft.	R-20

For SI: 1 foot = 304.8 mm.

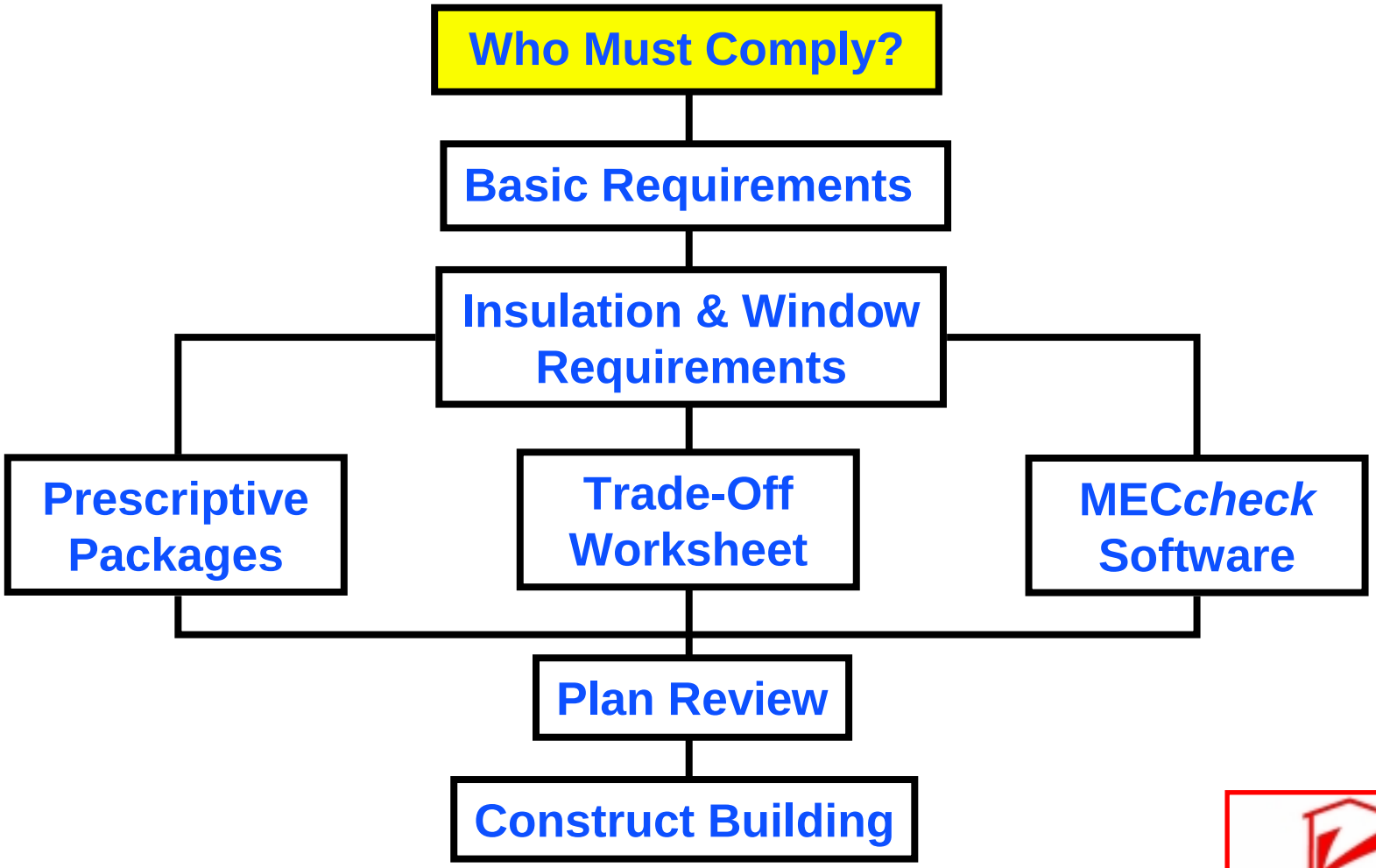
Thermal Envelope

- Sets U-value or R-value requirements based upon:
  - Heating degree days
  - Building component (ceilings, walls, floors, windows, doors, ducts and slab)
- Sets minimum efficiency requirements for other features that use energy

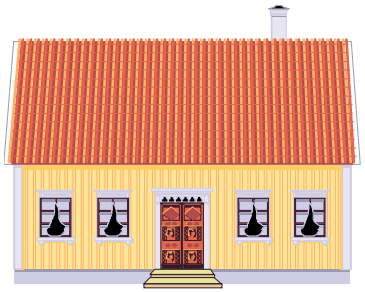
MEC*check*™ Manual

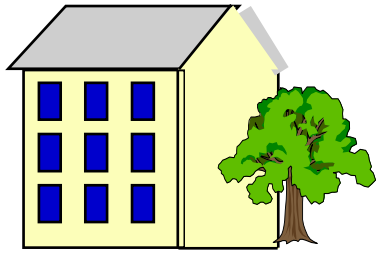
- Self-contained
  - IECC “yellow book” not needed
  - References interpreted
- Outline
  - Overview
  - Basic requirements
  - Insulation and glazing requirements
    - Prescriptive packages, or
    - Trade-off worksheet, or
    - Software
  - Plan check
  - Field inspection

Compliance Path



What Types of Buildings and What Areas Must Comply?





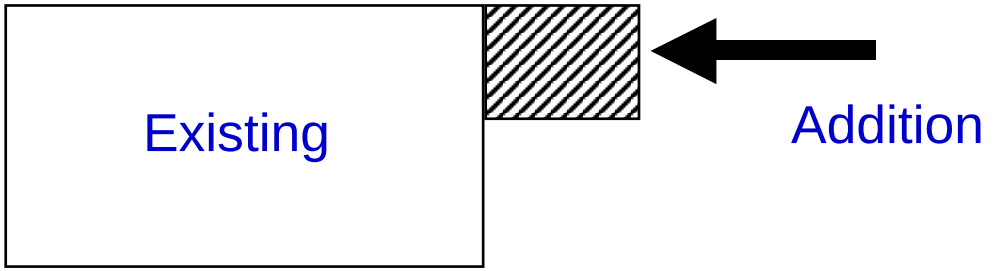
- New construction
- Heated and cooled space
  - Temperatures within the space are 50ºF or higher (heating) 85ºF or lower (cooling) during normal operation
  - Heated and/or cooled air (positive supply)
  - Uninsulated surfaces located within space

Buildings Exempt from the IECC

- No heating or cooling
- Historical
- Low peak energy <u>for all purposes</u>
  - < 3.4 Btu/hr/ft^2 of floor area
  - < 1.0 W/ft^2 of floor area

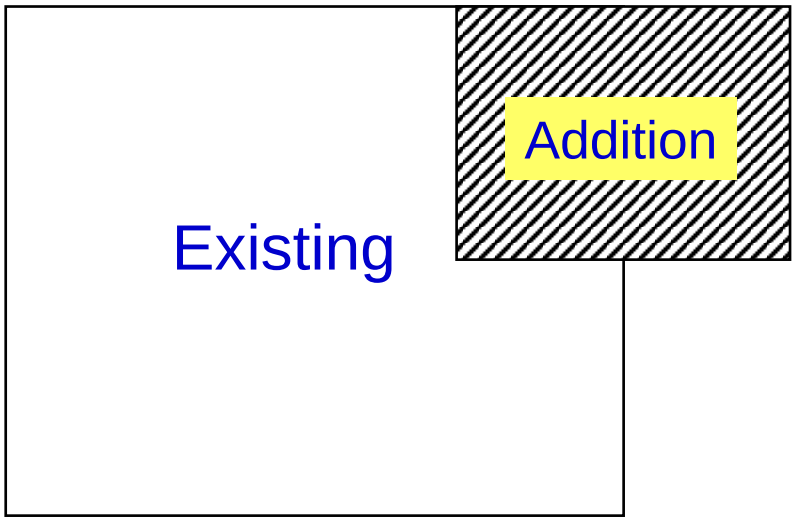
Other Conditions

- Additions



- Mixed Occupancy
  - Major occupancy > 90% of floor area of any floor in building.

Problem:



What must comply with the IECC if the addition includes:

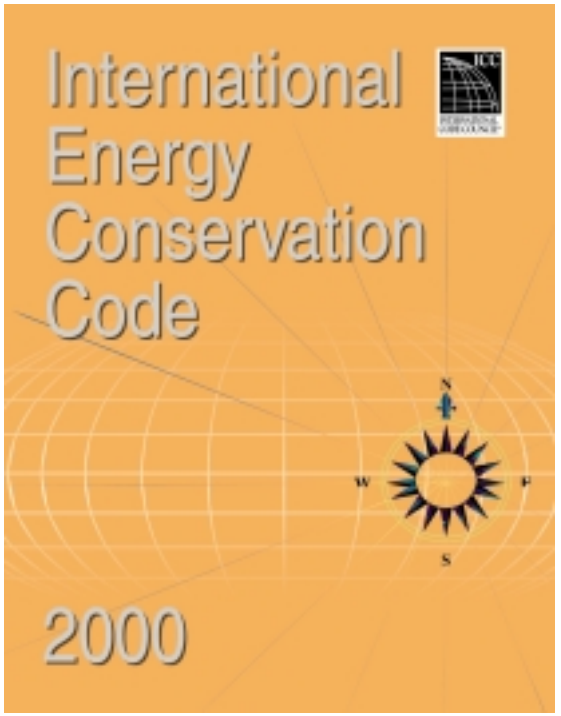
- New ducts from existing system
- Wood stove
- Windows
- Walls, ceiling, floor

Precedence

1st

Life, Health, Safety and Environment

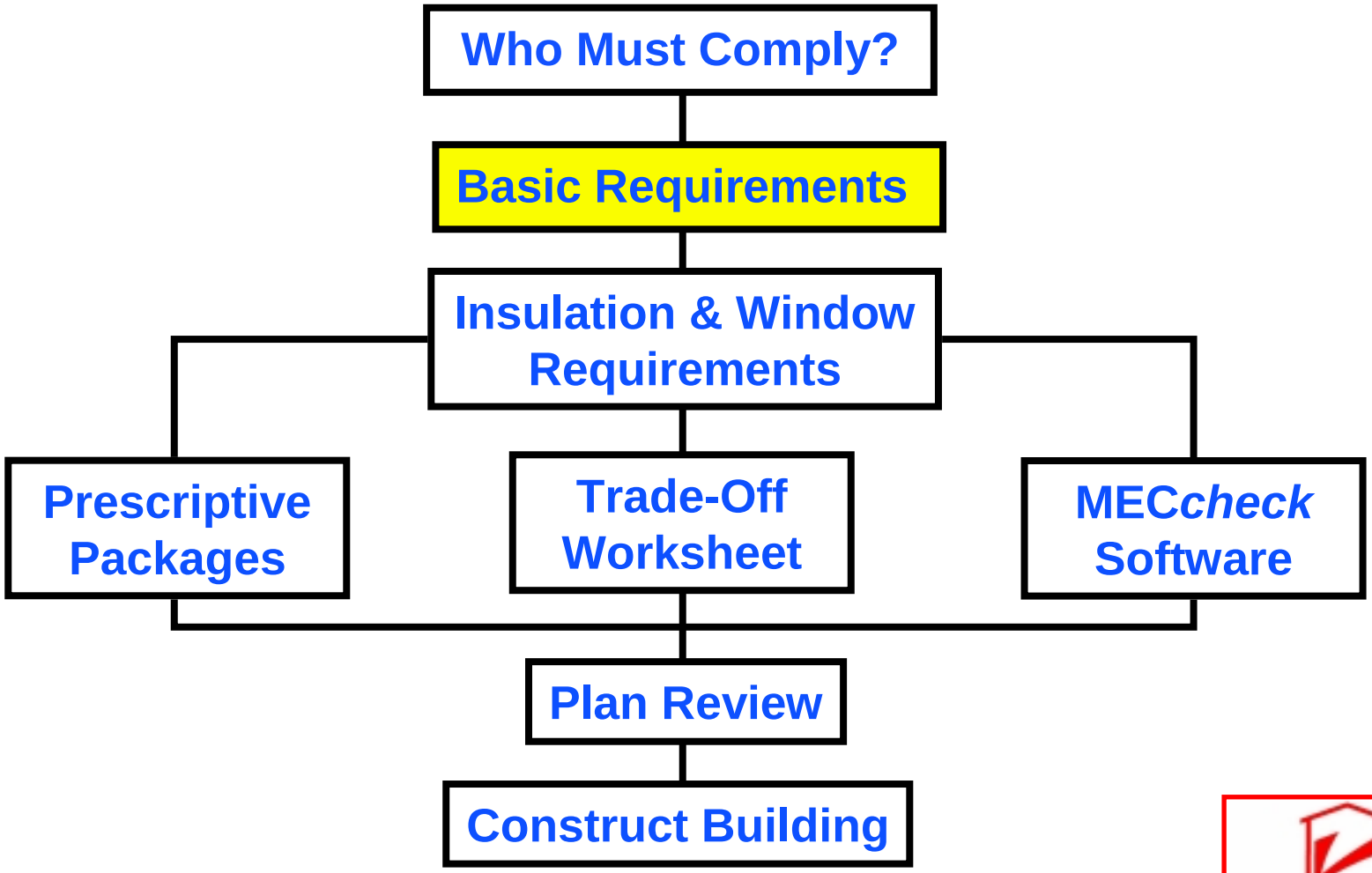
2nd



MECcheck

2000 IECC

Compliance Path



Air Leakage

Vapor Retarders

Materials and Equipment Information

Heating and Cooling Equipment Efficiencies

Duct Insulation

Duct Construction

Temperature Controls

HVAC Piping Insulation

Swimming Pools

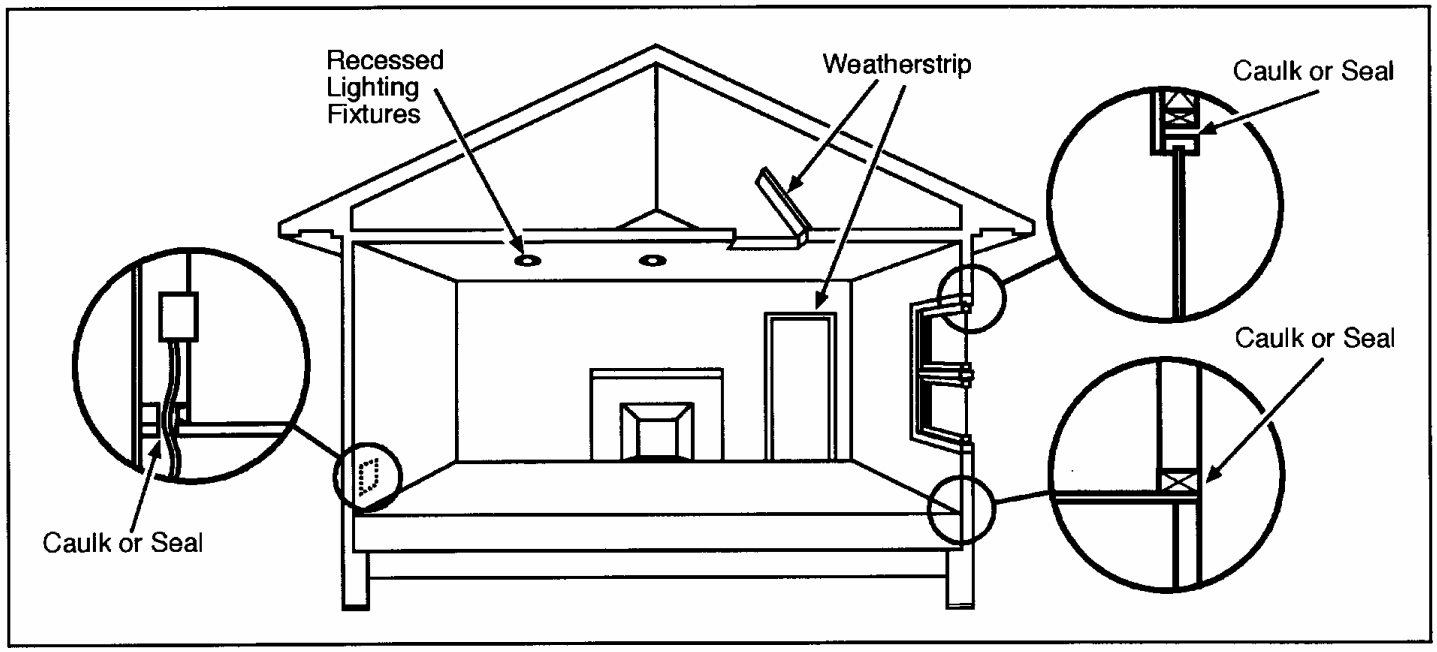
Circulating Service Hot Water Systems

Electrical

Basic Requirements

☞ Infiltration Controls

- ❖ Seal all joints, penetrations and other such openings in the building envelope



Infiltration Controls



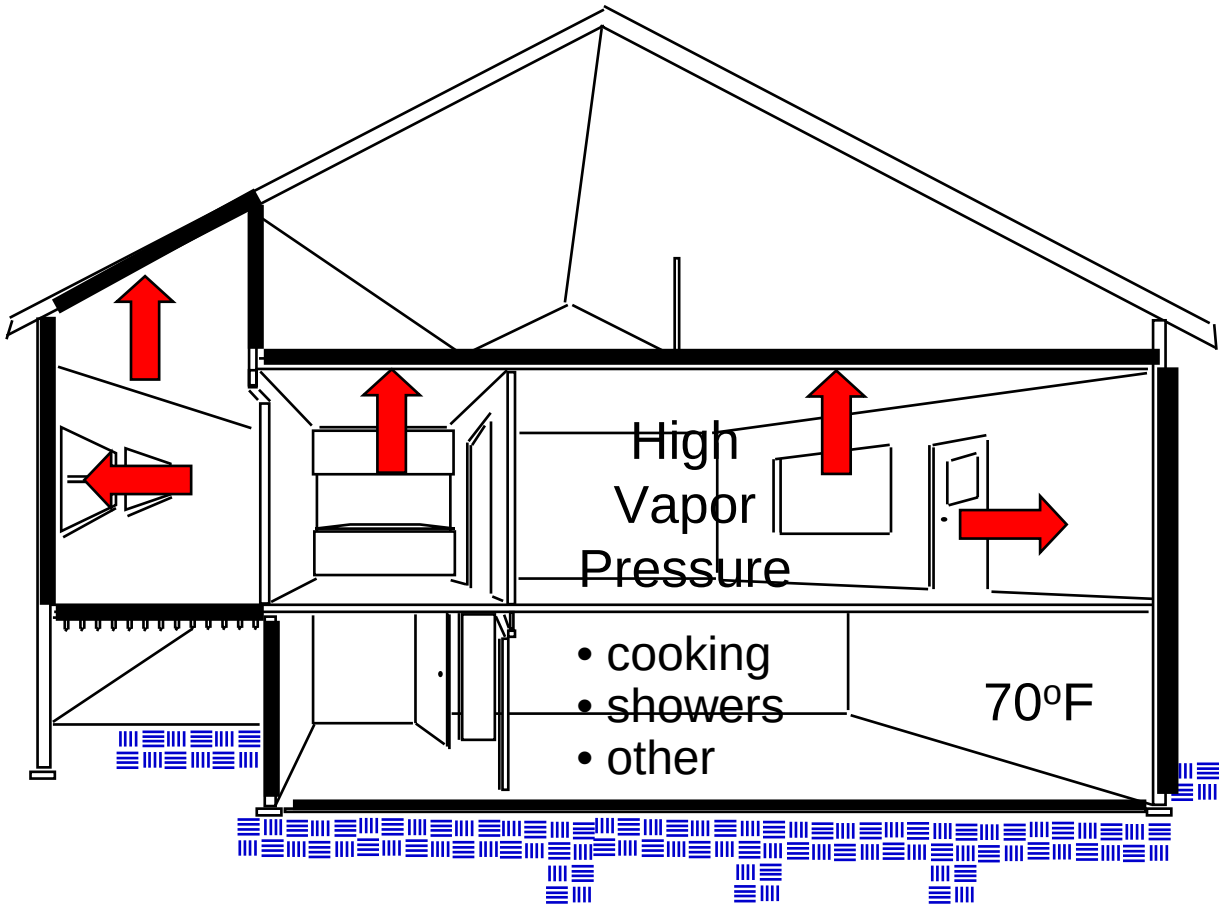



Infiltration Controls

Before

After

Vapor Pressure

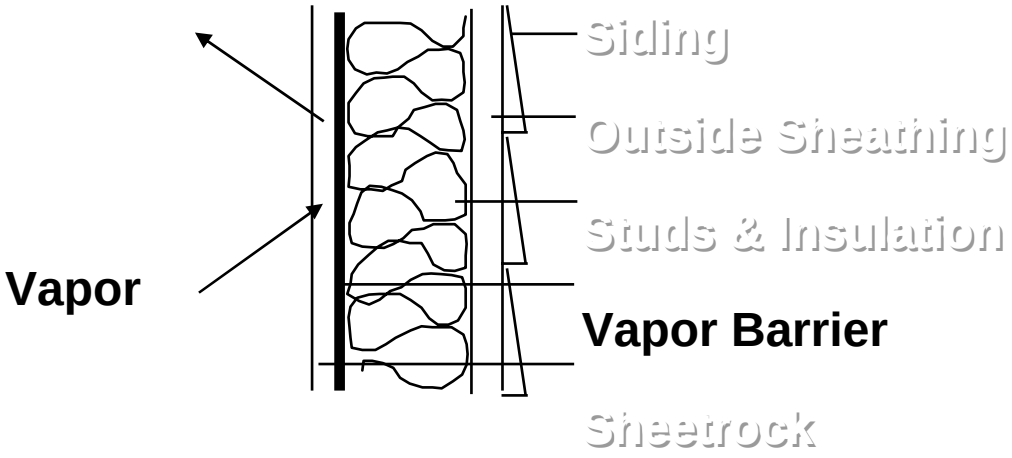


20°F

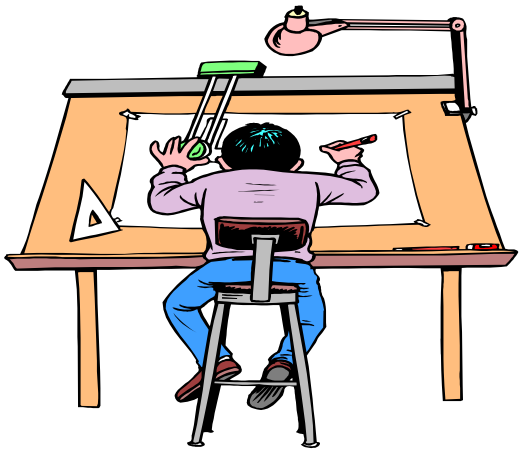
Low
Vapor
Pressure

Basic Requirements

- Vapor retarders
  - Install on “warm-in-winter side” of insulation
  - Use in unvented framed walls, floors, and ceilings
  - Must have Perm rating of ≤ 1.0 per ASTM E96-80
  - Exceptions



Basic Requirements



- Materials identification
  - Show sufficient detail
    - EXAMPLES - call out:
      - envelope insulation levels
      - duct insulation levels
      - high efficiency heating equipment
  - Manufactured window and door infiltration rate
  - Site-built window and door infiltration control
  - Locations with HDD < 3500
  - Combined SHGC must be < 0.4
  - Recessed lighting fixtures

Air Leakage

Vapor Retarders

Materials and Equipment information

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Duct Construction

Temperature Controls

HVAC Piping Insulation

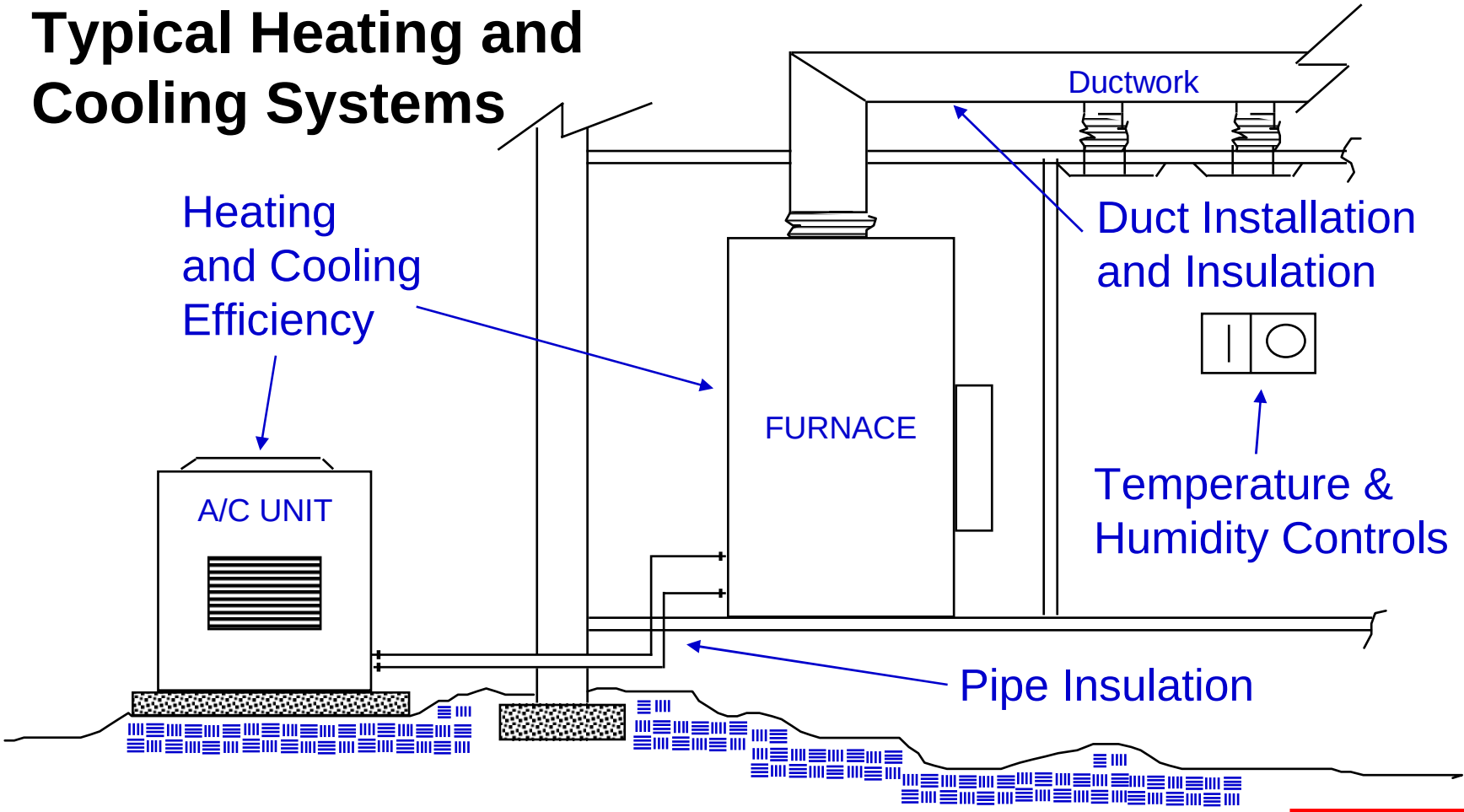
Swimming Pools

Circulating Service Hot Water Systems

Electrical

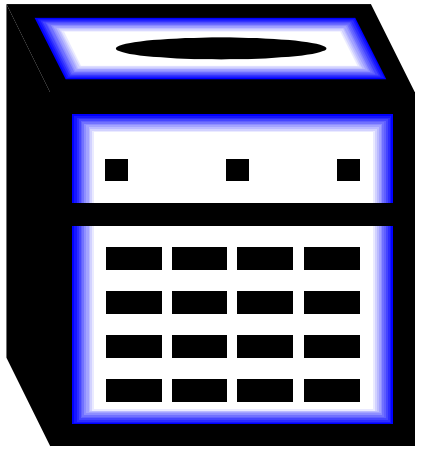
HVAC Systems

Typical Heating and Cooling Systems



HVAC Efficiency Requirements

- Pre-empted by the National Appliance Energy Conservation Act (NAECA)
- Applies to heating and cooling and water heating systems



Duct Insulation Requirements

	Insulation R-values (h•ft^2•°F)/Btu[d]			
	Ducts in unconditioned attics or outside building		Ducts in unconditioned basements, crawl spaces, garages and other unconditioned spaces[c]	
	Supply	Return	Supply	Return[b]
Annual Heating Degree Days				
Below 1,500	8	4	4	0
1,500 to 3,500	8	4	6	2
3,501 to 7,500	8	4	8	2
Above 7,500	11	6	11	2

Other Requirements

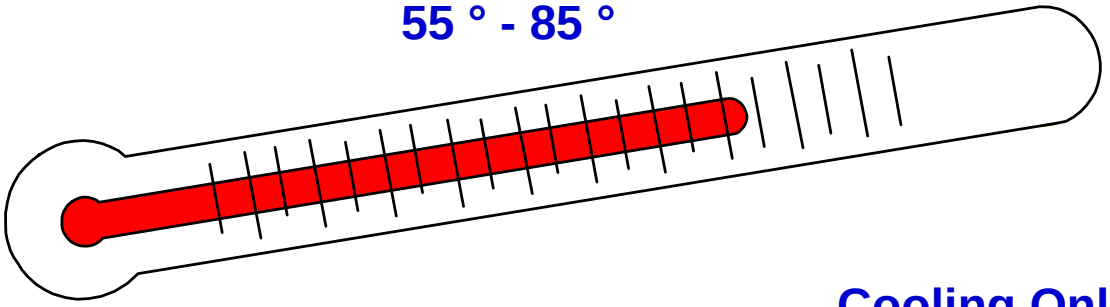
- Duct installation/sealing
  - Low-pressure supply and return ducts sealed using mastic with fibrous backing tape
  - Mechanical Code of local jurisdiction

Duct Systems - Air Sealing

HVAC Systems

- One thermostat per system
  - Adjustable
  - Temperature ranges

Heating & Cooling
55 ° - 85 °



Heating Only
55 ° - 75 °

Cooling Only
70 ° - 85 °

HVAC Systems

- Additional requirements for Heat Pump Thermostats
  - Capable of preventing supplementary heating when the heating load can be met by the heat pump alone
  - Two-stage thermostats where the back-up heat is controlled by the second stage meets this requirement

HVAC Systems

- Humidity control
  - Humidistat
- HVAC piping insulation
  - HVAC piping in unconditioned space
    - Fluid temperature > 120°F and < 55°F

Air Leakage

Vapor Retarders

Materials and Equipment information

Heating and Cooling Equipment Efficiencies

Duct Insulation

Duct Construction

Temperature Controls

HVAC Piping Insulation

Swimming Pools

Circulating Service Hot Water Systems

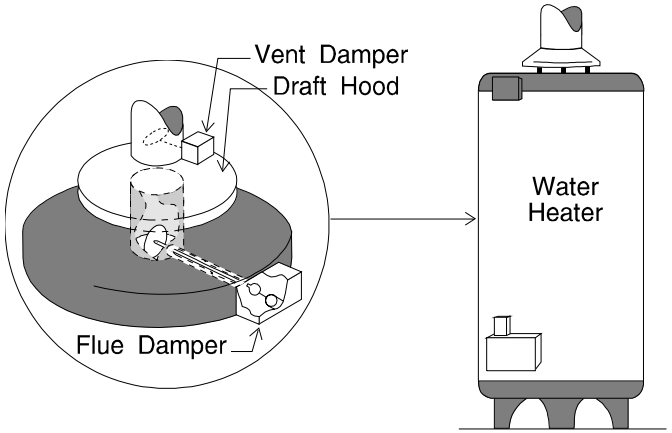
Electrical

Water Heating Systems

- Swimming pools
  - All
    - Time clocks for circulation pumps
  - Heated only
    - On/Off switch on heater
      - Pool covers
      - Exceptions

Water Heating Systems

- Water heating efficiency
  - Energy Factor (EF)
  - Meet requirements of Table 504.2
  - Exception
- Circulating hot water piping
  - Pump operation
  - Pipe insulation
    - Exception - where piping heat loss without insulation does not increase annual energy requirements of building
- Insulation is key in reducing the waste of energy in distribution
- One-inch of insulation on DHW pipes could result in a 50% drop in the distribution heat loss



Conservation of Hot Water

- Showers
  - Showerheads max. flow rate of 2.5 gpm at a pressure of 80 psi

Air Leakage

Vapor Retarders

Materials and Equipment information

Heating and Cooling Equipment Efficiencies

Duct Insulation

Duct Construction

Temperature Controls

HVAC Piping Insulation

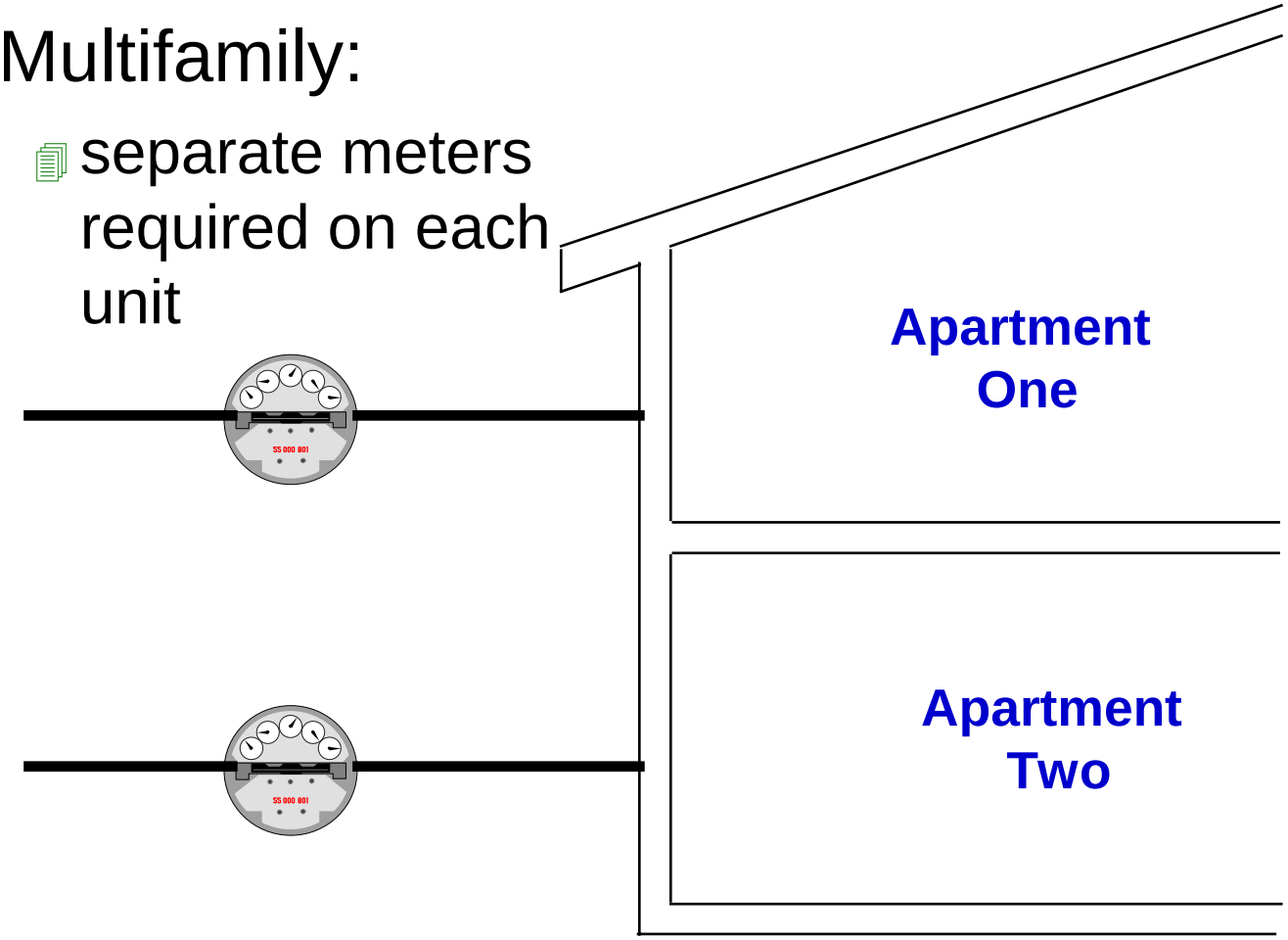
Swimming Pools

Circulating Service Hot Water Systems

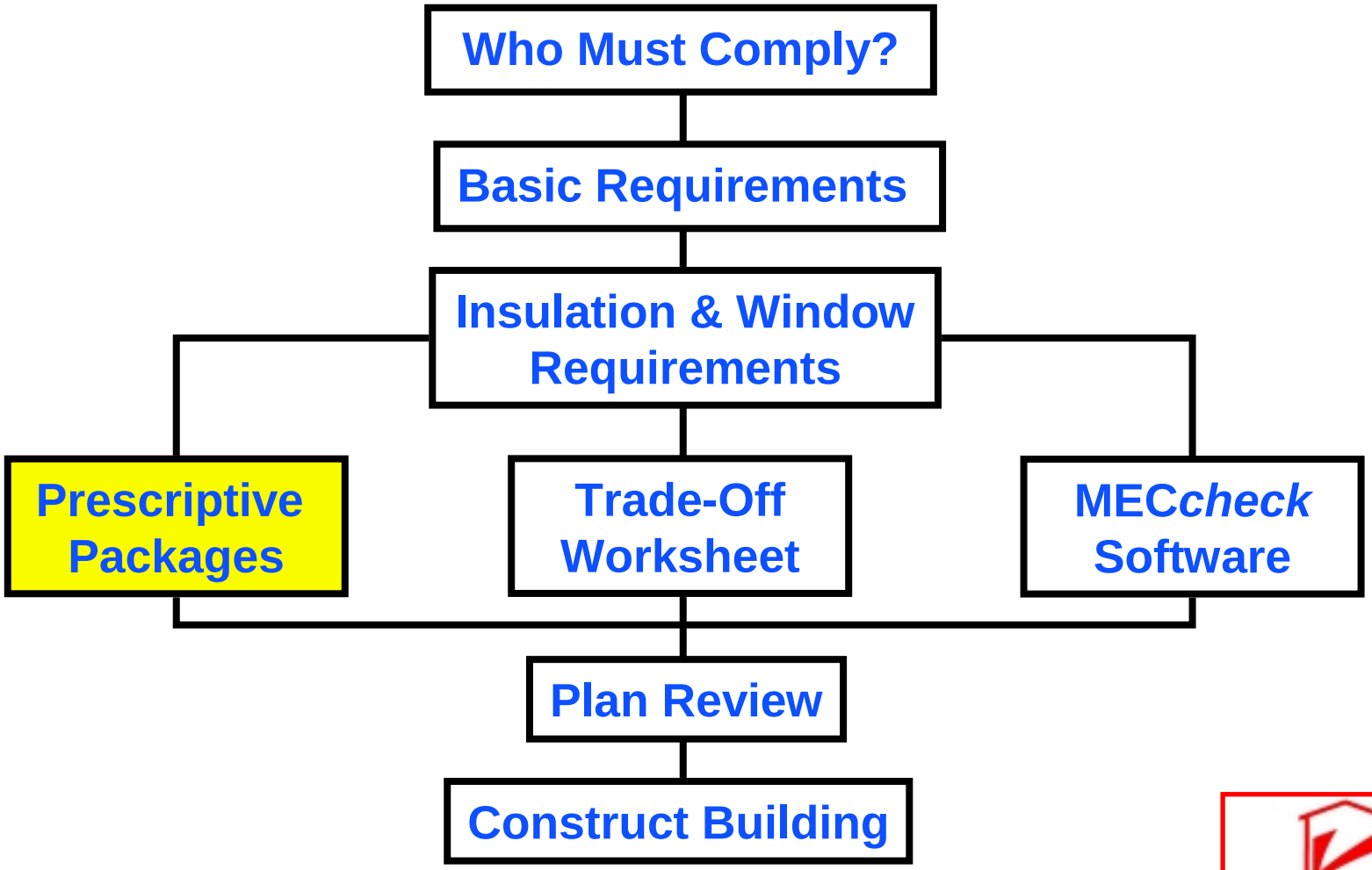
Electrical

Electrical Systems

- Electrical metering
  - Multifamily:
    - separate meters required on each unit



Compliance Path



Prescriptive Package Approach

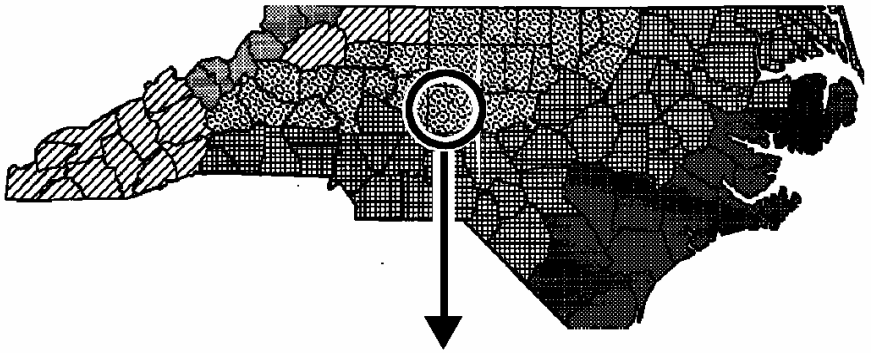
- **Overview**
  - Straight forward pre-calculated compliance approach
  - Climate zone dependent
  - R & U-Value requirements specified

Prescriptive Packages - Zone 6

1995 Model Energy Code for Single-Family Buildings

Package	MAXIMUM		MINIMUM						Heating/Cooling Equipment Efficiency[9]
	Glazing Area Percent[1]	Glazing U-Value[2]	Ceiling R-Value[3]	Wall R-Value[4]	Floor R-Value[5]	Basement Wall R-Value[6]	Slab Perimeter R-Value[7]	Crawl Space Wall R-Value[8]	
1	12%	0.70	R-30	R-11	R-19	R-6	R-5	R-7	Normal
2	12%	0.60	R-38	R-13	R-11	R-4	R-0	R-4	Normal
3	15%	0.60	R-30	R-13	R-19	R-6	R-4	R-7	Normal
4	15%	0.45	R-38	R-11	R-11	R-4	R-0	R-4	Normal
5	18%	0.60	R-38	R-19	R-15	R-5	R-2	R-6	Normal
6	18%	0.45	R-30	R-13	R-13	R-5	R-2	R-5	Normal
7	22%	0.45	R-38	R-13	R-19	R-6	R-4	R-7	Normal
8	12%	0.90	R-26	R-13	R-11	R-4	R-0	R-4	High Heating
9	15%	0.75	R-30	R-13	R-11	R-4	R-0	R-4	High Heating
10	18%	0.70	R-30	R-13	R-15	R-5	R-2	R-6	High Heating
11	22%	0.60	R-30	R-11	R-19	R-6	R-2	R-7	High Heating
12	12%	0.70	R-26	R-11	R-15	R-5	R-2	R-6	High Cooling

Prescriptive Package Approach



1. Find your climate zone.

Prescriptive Packages - Zone 8

1995 Model Energy Code for Single-Family Buildings

Package	Glazing Area Percent	Glazing U-Value	Ceiling R-Value	Wall R-Value	Floor R-Value	Basement Wall R-Value	Slab Perimeter R-Value	Crawl Space Wall U-Value	Heating/Cooling Equipment Efficiency
1	12%	0.60	R-30	R-13	R-19	R-8	R-4	R-10	Normal
2	12%	0.45	R-30	R-13	R-11	R-5	R-2	R-6	Normal
3	15%	0.65	R-38	R-18	R-19	R-8	R-6	R-11	Normal
4	15%	0.50	R-30	R-13	R-19	R-8	R-5	R-10	Normal
5	15%	0.40	R-38	R-13	R-11	R-5	R-2	R-6	Normal
6	18%	0.55	R-38	R-18	R-19	R-8	R-6	R-11	Normal

2. Select a Prescriptive Package.

MECcheck

Prescriptive Package Worksheet

Builder Name _____ Date _____

Builder Address _____

Building Address _____

Zone Number _____ Package Number _____

Submitted By _____ Phone Number _____

Enforcement Agency

Permit #

Checked By

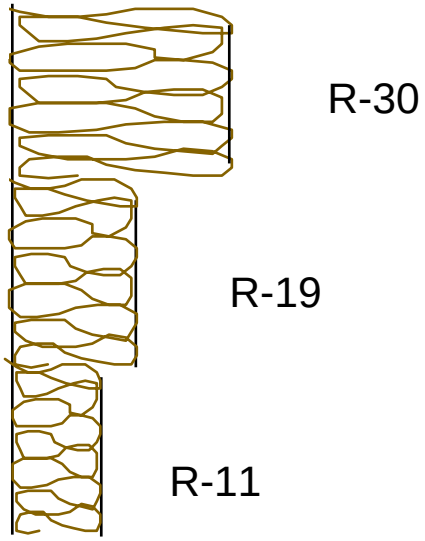
Date

PROPOSED	REQUIRED
Glazing Area	
100 X _____ (Glazing Area) + _____ (Gross Wall Area) = _____ % (Proposed Glazing Area)	_____ % (Maximum Glazing Area)

3. Complete the *Prescriptive Package Worksheet.*

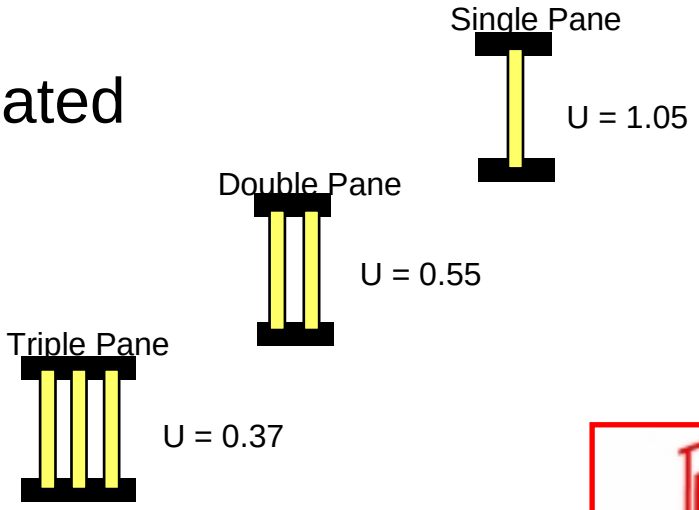
R-Values

- Higher R-value = Better Insulated
- R-value applies to:
  - All walls
  - Raised floors
  - Roofs

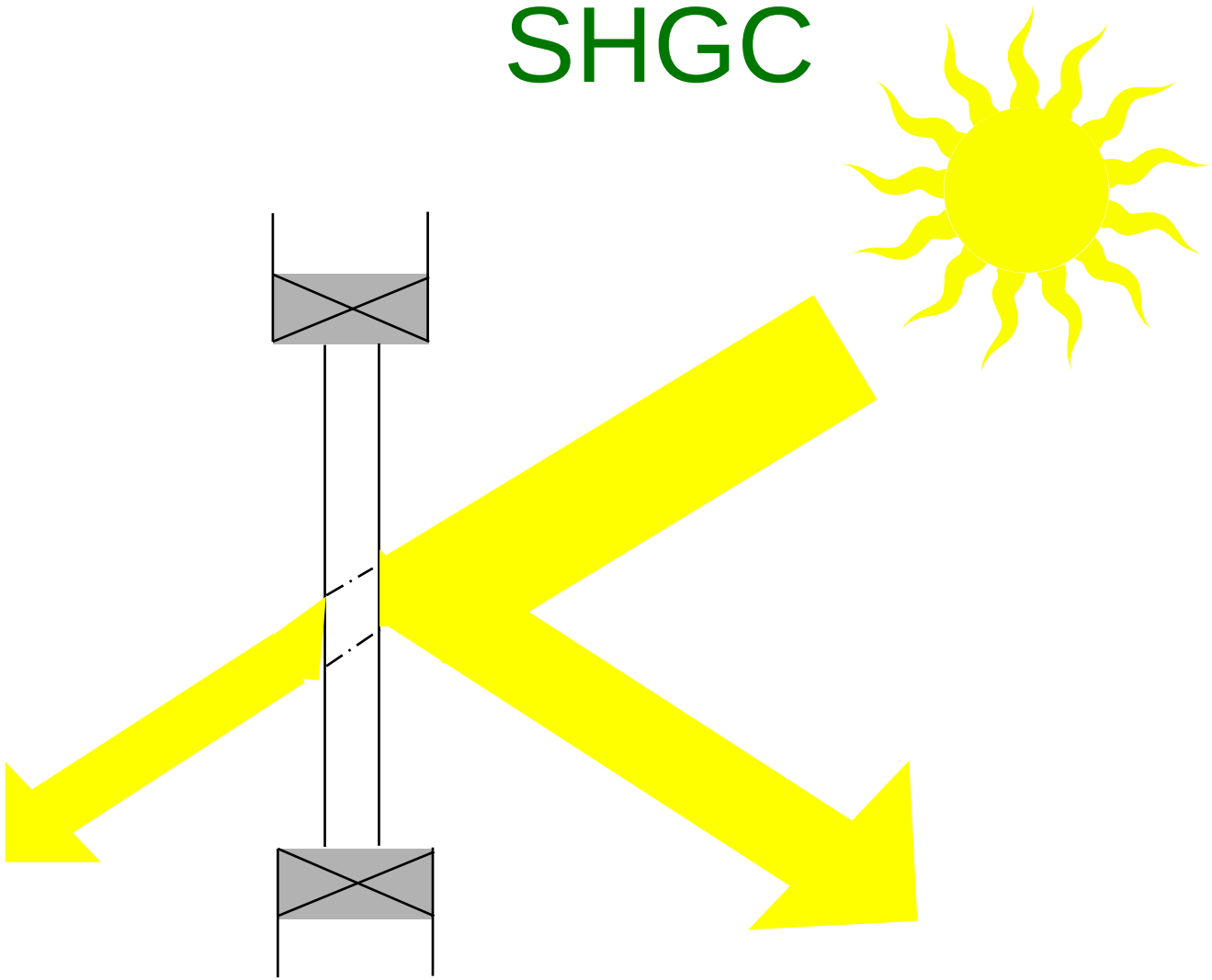


U-Values

- Lower U-value = Better Insulated
- U-value applies to:
  - Windows
  - Skylights
  - Doors



SHGC

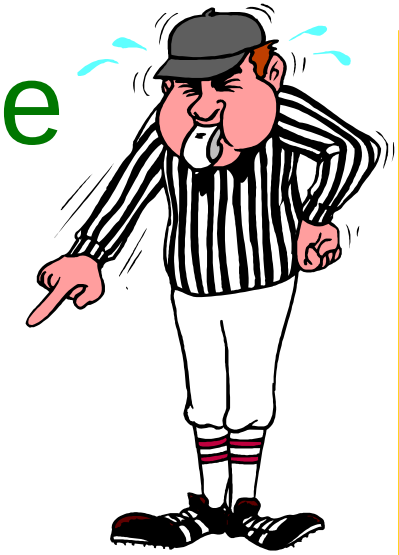


Prescriptive Packages - Find The Zone/Package

1995 Single-Family Prescriptive Packages - Zone 10

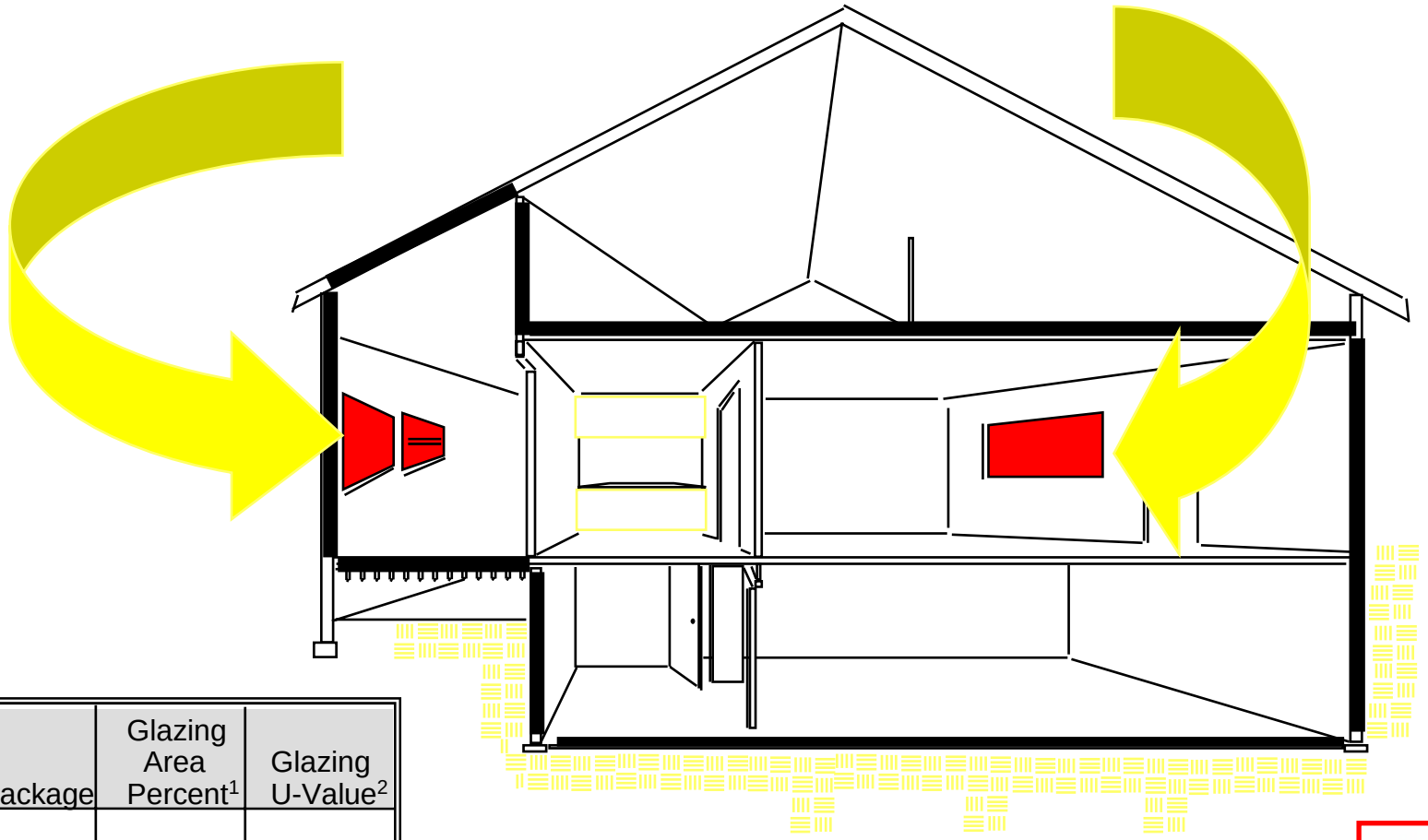
Package	MAXIMUM		MINIMUM						Heating/Cooling Equipment Efficiency[9]
	Glazing Area %[1]	Glazing U-Value[2]	Ceiling R-Value[3]	Wall R-Value[4]	Floor R-Value[5]	Basement Wall R-Value[6]	Slab Perimeter R-Value[7]	Crawl Space Wall R-Value[8]	
1	12%	0.65	R-38	R-19	R-19	R-9	R-7	R-17	Normal
2	12%	0.45	R-30	R-13	R-19	R-9	R-6	R-17	Normal
3	15%	0.55	R-38	R-19	R-21	R-10	--	R-22	Normal
4	15%	0.40	R-38	R-13	R-19	R-9	R-5	R-16	Normal
5	18%	0.45	R-38	R-19	R-19	R-9	R-7	R-17	Normal
6	18%	0.35	R-38	R-13	R-19	R-9	R-6	R-17	Normal
7	22%	0.40	R-49	R-21	R-19	R-9	R-6	R-17	Normal
8	12%	0.75	R-38	R-11	R-19	R-8	R-2	R-17	High Heating
9	12%	0.65	R-38	R-13	R-11	R-6	R-0	R-8	High Heating
10	15%	0.65	R-30	R-13	R-19	R-9	R-2	R-22	High Heating
11	15%	0.50	R-30	R-13	R-11	R-6	R-0	R-8	High Heating
12	18%	0.55	R-30	R-13	R-19	R-9	R-2	R-22	High Heating
13	18%	0.45	R-38	R-13	R-11	R-5	R-0	R-8	High Heating
14	22%	0.55	R-38	R-17	R-19	R-9	R-2	R-22	High Heating
15	22%	0.40	R-30	R-13	R-13	R-6	R-2	R-10	High Heating
16	12%	0.75	R-30	R-13	R-15	R-7	R-2	R-14	High Heat/Cool
17	12%	0.65	R-26	R-13	R-13	R-6	R-0	R-10	High Heat/Cool
18	15%	0.70	R-30	R-15	R-19	R-9	R-2	R-22	High Heat/Cool
19	15%	0.55	R-26	R-13	R-13	R-6	R-2	R-10	High Heat/Cool
20	18%	0.65	R-38	R-19	R-15	R-7	R-2	R-14	High Heat/Cool
21	18%	0.50	R-38	R-13	R-13	R-6	R-0	R-10	High Heat/Cool
22	22%	0.60	R-38	R-17	R-26	R-11	R-8	--	High Heat/Cool
23	22%	0.45	R-38	R-13	R-15	R-7	R-2	R-12	High Heat/Cool

Rules of the Game



- Insulation R-values - count for insulation only
- Door U-values < 0.35
  - Exception - one door
- Window U-value - exclude 1% “allowed area” from requirement
- Climate Zones 1-7 shall have an area-weighted average SHGC of < 0.4
- Basement windows count in “window area”/basement walls don’t count in exterior wall area
- Ceiling insulation R-value - R-30 for R-38/R-38 for R-49 for raised or oversize truss construction
- Floors over “outside air” must meet ceiling insulation requirements
- Heating Efficiency - “High” = 90% AFUE, 7.8 HSPF
- Cooling Efficiency - “High” = 12.0 SEER

Prescriptive Packages - Glazing Area and U-Value



Package	Glazing Area Percent[1]	Glazing U-Value[2]
3	15%	0.55

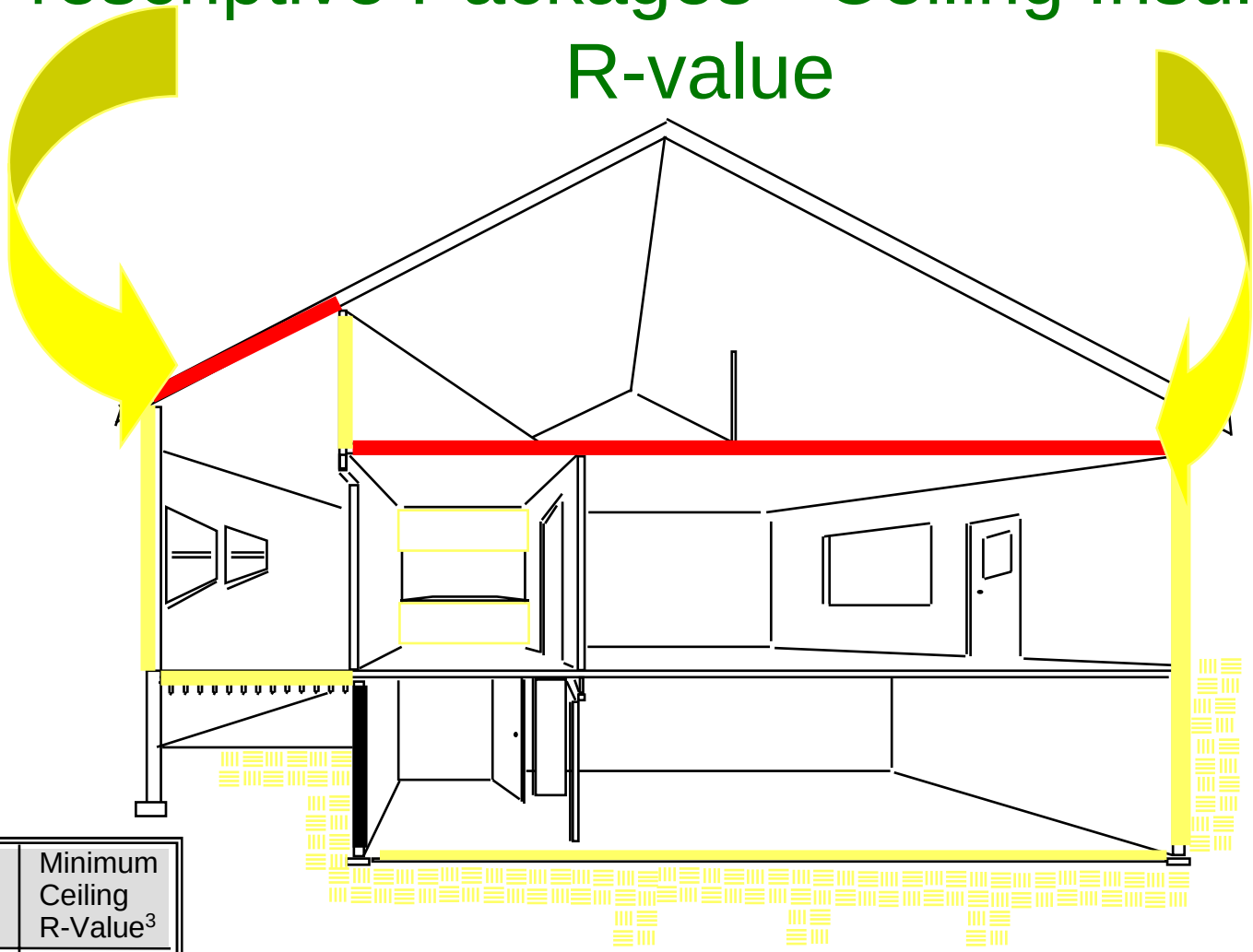
Glazing Default U-Values

	Single Glazed	Double Glazed
METAL WITHOUT THERMAL BREAKS		
Operable	1.30	0.87
Fixed	1.17	0.69
Door	1.26	0.80
Skylight	1.92	1.30
METAL WITH THERMAL BREAKS		
Operable	1.07	0.67
Fixed	1.11	0.63
Door	1.10	0.66
Skylight	1.50	0.88
WOOD/VINYL		
Operable	0.94	0.56
Fixed	1.04	0.57
Door	0.98	0.56
Skylight	1.47	0.85

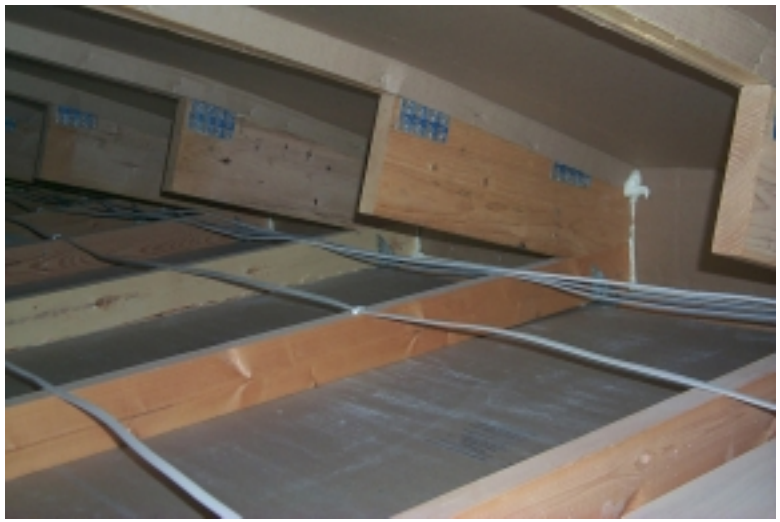
For SI: 1 inch = 25.4 mm.

Glass block assemblies shall have a U-value of 0.60.

Prescriptive Packages - Ceiling Insulation R-value



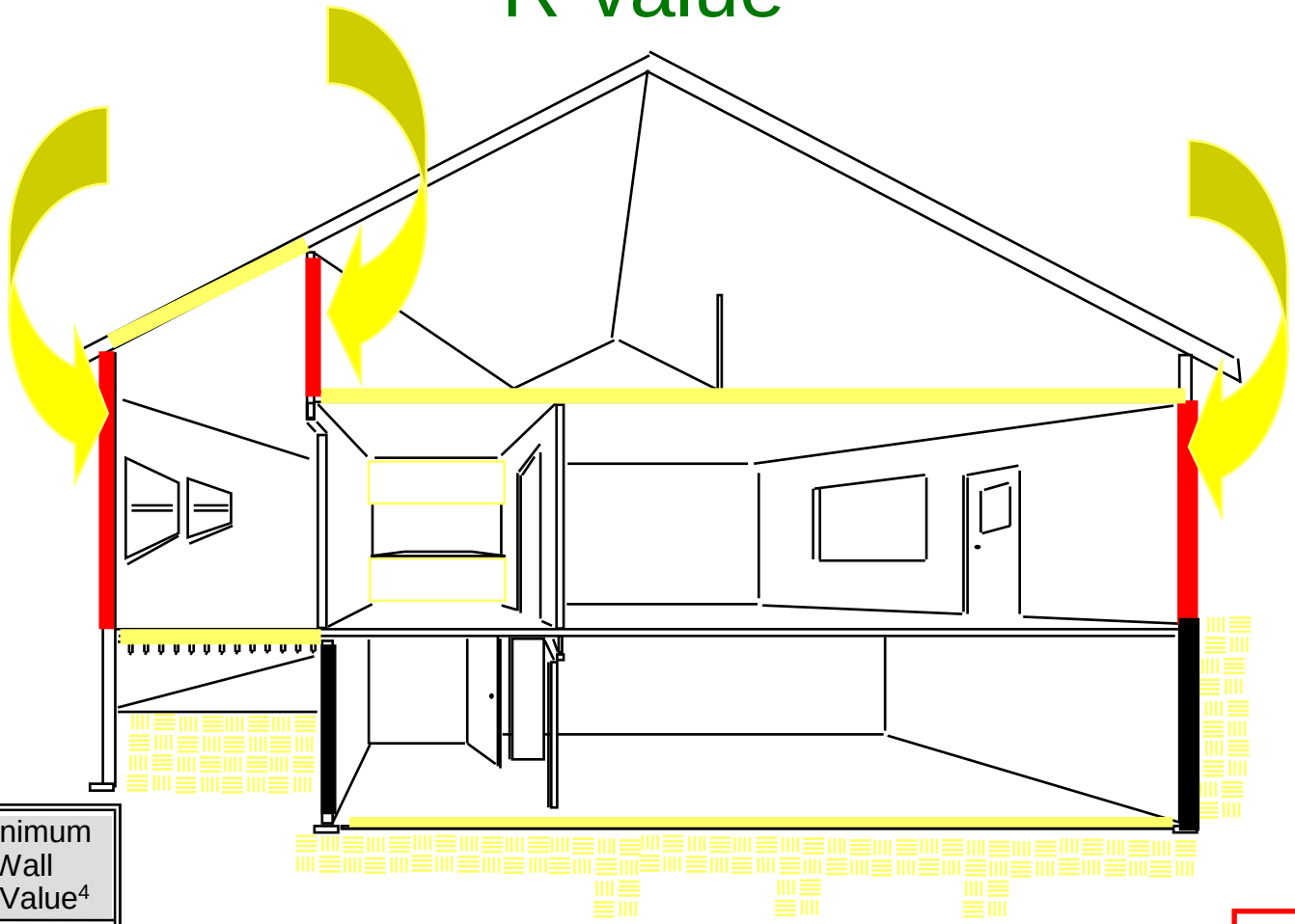
Package	Minimum Ceiling R-Value[3]
3	R-38



Advanced Framing

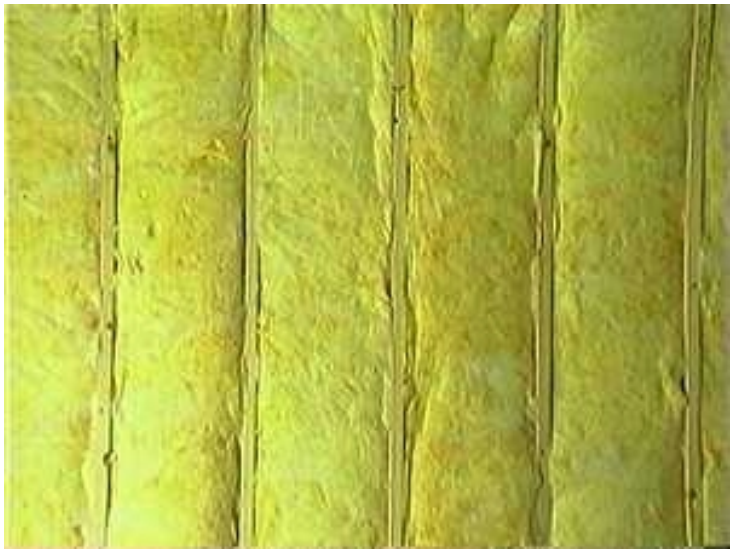
Raised Heel Trusses

Prescriptive Packages - Wall Insulation R-value



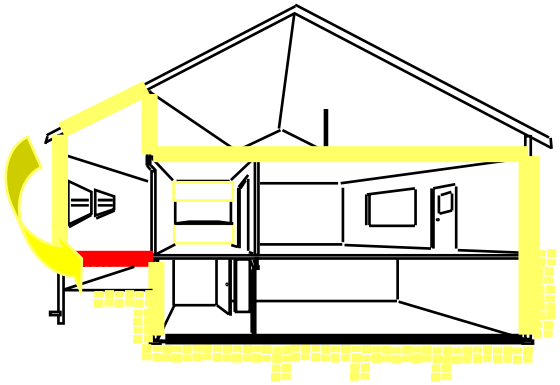
Package	Minimum Wall R-Value[4]
3	R-19

Wall Insulation



Prescriptive Packages

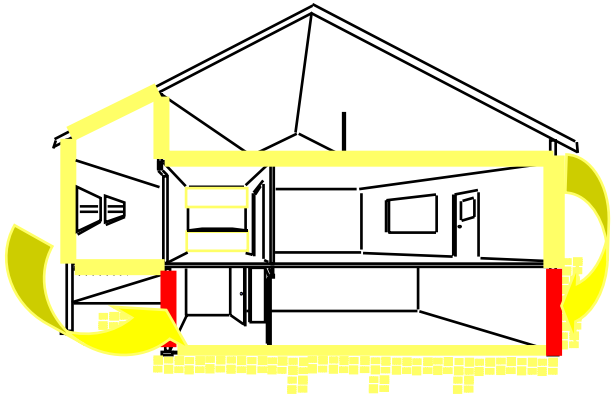
Floor R-Value



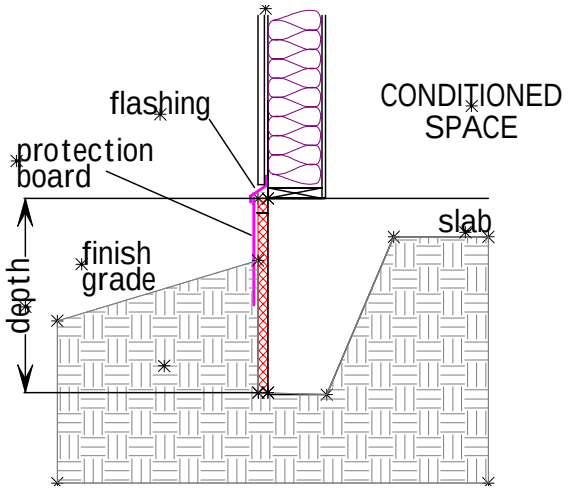
Package	Minimum Floor R-Value[5]
3	R-21

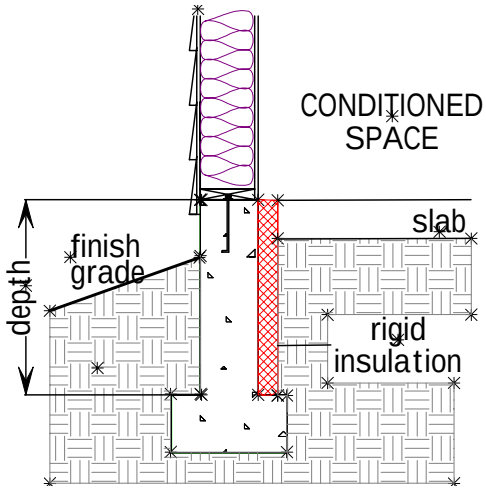
Basement Wall R-Value

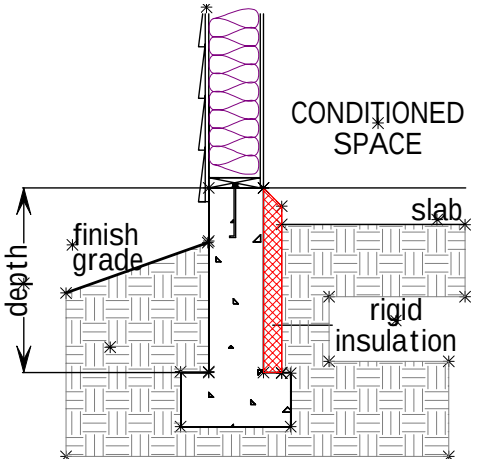
Package	Minimum Basement Wall R-Value[6]
3	R-10



Prescriptive Packages - Slab Perimeter R-value





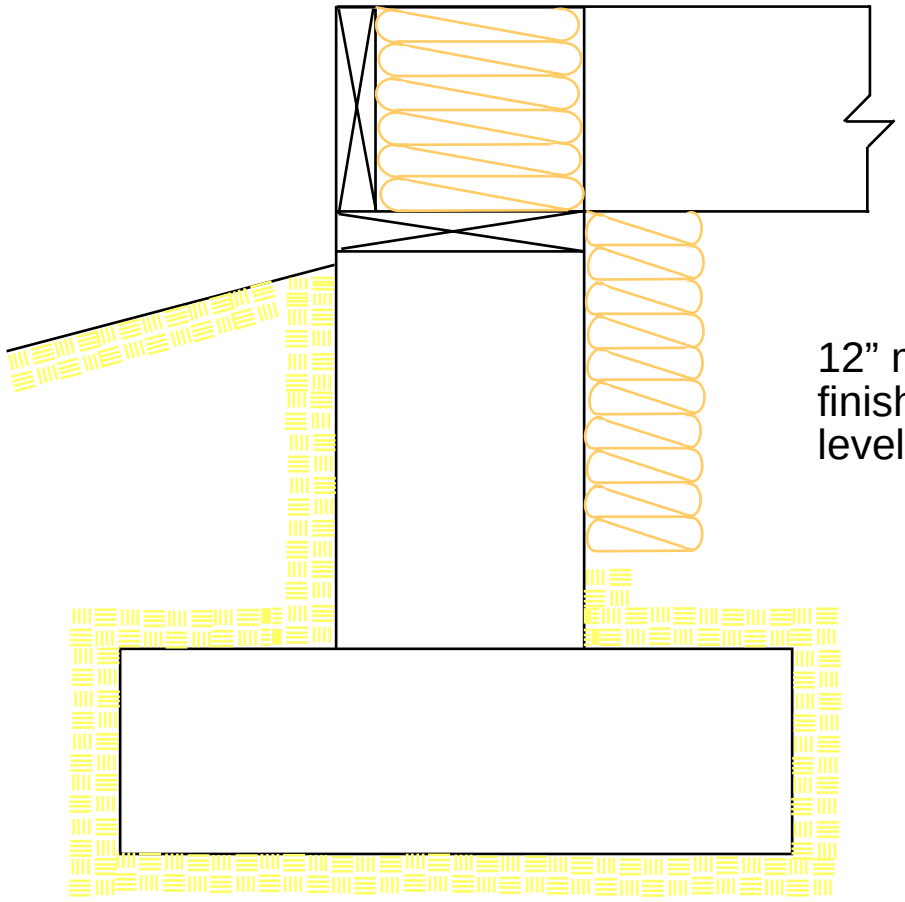


Package	Minimum Slab Perimeter R-Value[7]
3	-

Slab Edge Insulation

<u>Insulation Depth</u>
-Not required in Zone 1
-24” Zone 2 to Zone 12
-48” Zone 13 to Zone 17

Prescriptive Packages - Crawl Space Wall R-value



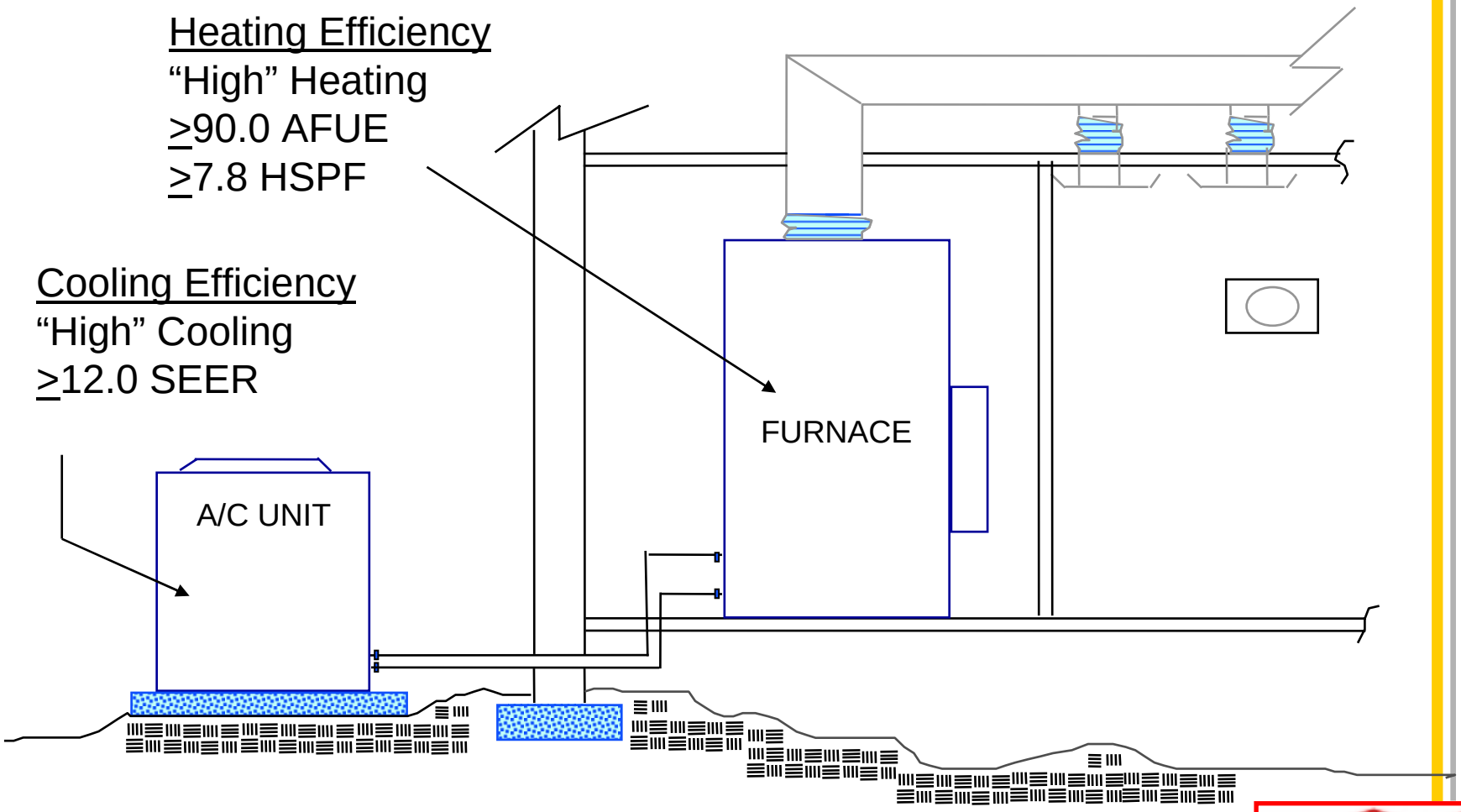
12” minimum below finished exterior grade level

Package	Minimum Crawl Space Wall R-Value[8]
3	R-22

Prescriptive Packages - HVAC Systems

Heating Efficiency
"High" Heating
≥90.0 AFUE
≥7.8 HSPF

Cooling Efficiency
"High" Cooling
≥12.0 SEER



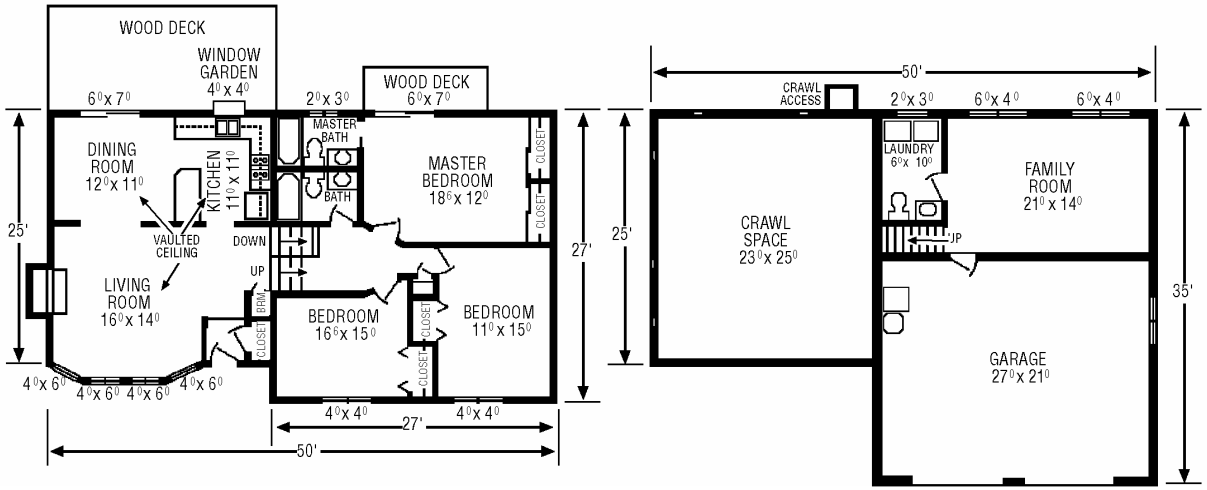
Prescriptive Packages - Compare the Packages

Package	Glazing U-Value[2]	Ceiling R-Value[3]	Wall R-Value[4]	Floor R-Value[5]	Basement Wall R-Value[6]	Slab Perimeter R-Value[7]	Crawl Space Wall R-Value[8]	Heating/Cooling Equipment Efficiency[9]
3	0.55	R-38	R-19	R-21	R-10	-	R-22	Normal
17	0.65	R-26	R-13	R-13	R-6	R-0	R-10	High Heat/Cool

Problem:

Determine compliance for the following single family residence

Prescriptive Package Approach

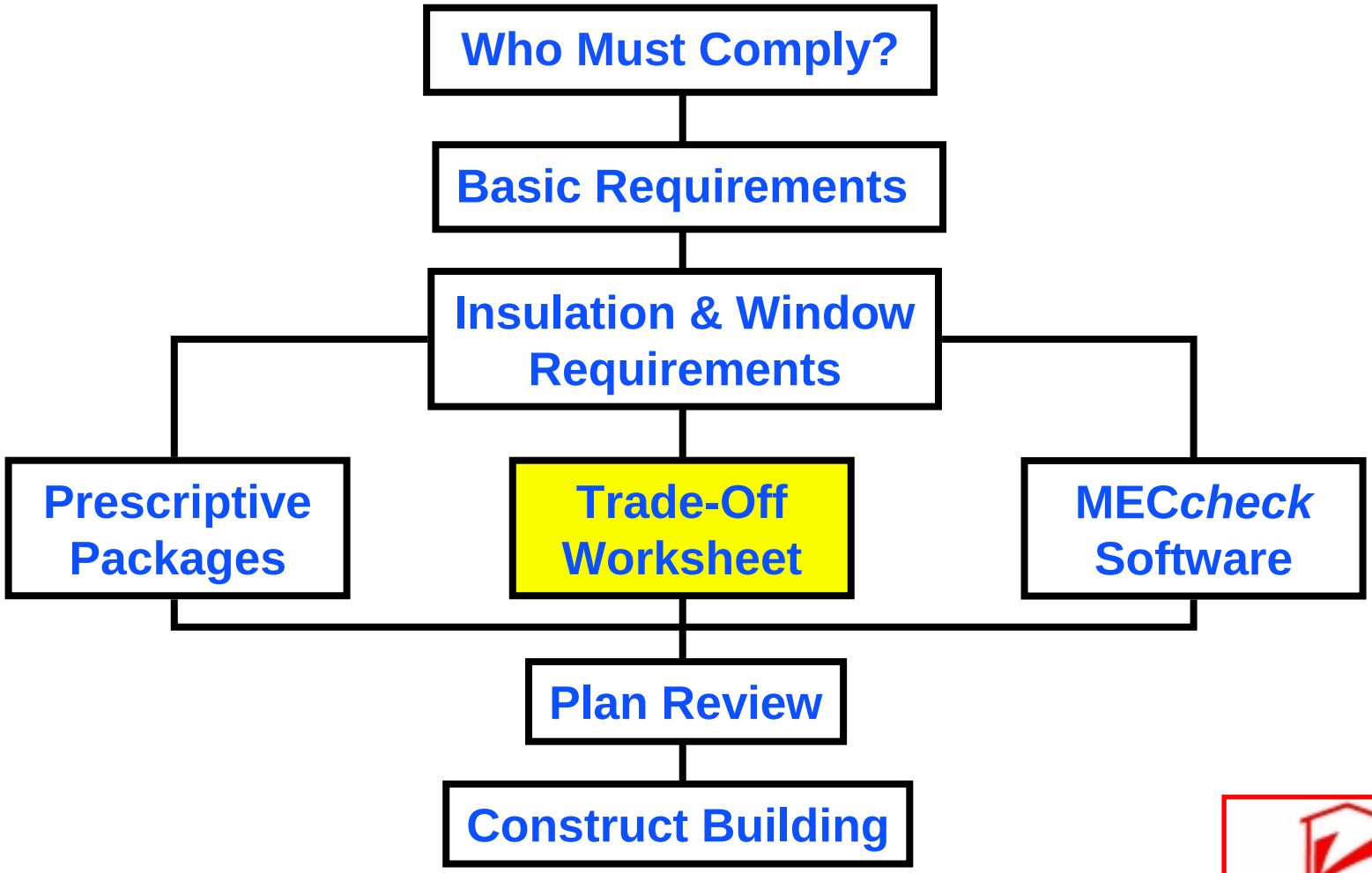


Prescriptive Package Approach

Example House Specifications

Building Component	Area (ft^2)	Insulation Level
Ceilings		
With Attic	729	R-38
Cathedral	592	R-30
Exterior Walls	276 Gross	R-13
2” x 4” @ 16” O.C.	1647 Gross	R-19 (R-13 Cavity & R-6 Sheathing)
Windows	204	U-0.38
Sliding Glass Doors	84	U-0.43
Doors		
Entrance	20	U-0.54
Garage to Family Room	18	U-0.35
Floors		
Over Garage	363	R-19
Over Crawl Space	575	R-19
Over Outside Air	24	R-30
Slab-On-Grade (unheated)	378 (55 perimeter ft.)	R-8
Heating Efficiency		High

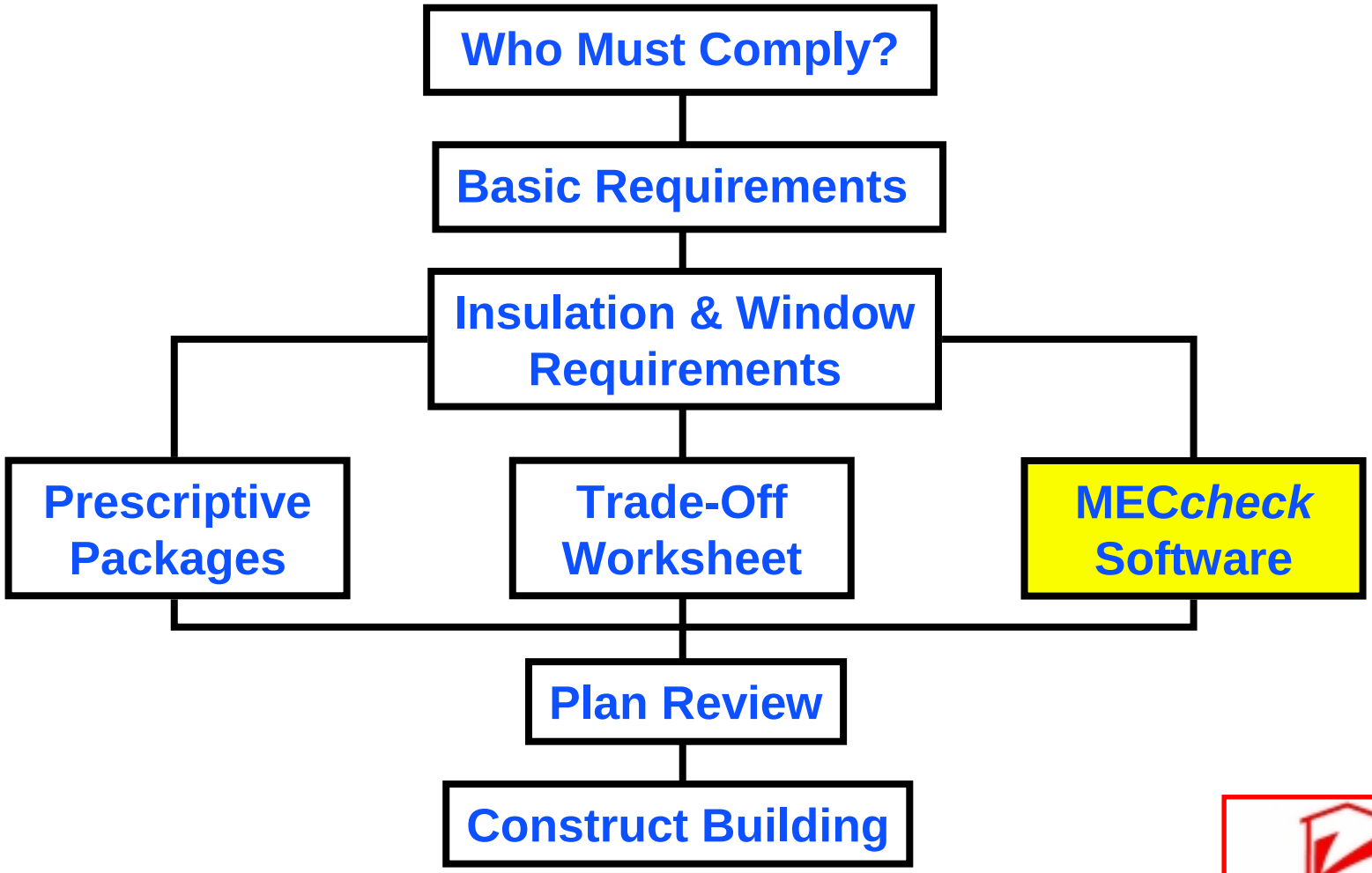
Compliance Path



Trade-Off Worksheet

- Overview
  - Allows for trade-offs between all thermal envelope components
  - Allows for multiple ceiling, wall, floor and window types
  - Compliance when Proposed House UA $\leq$ Required House UA

Compliance Path



MEC*check*™ Software

- Software evaluates specific designs quickly
- Allows trade-offs
  - Building envelope components
  - Heating and cooling efficiencies

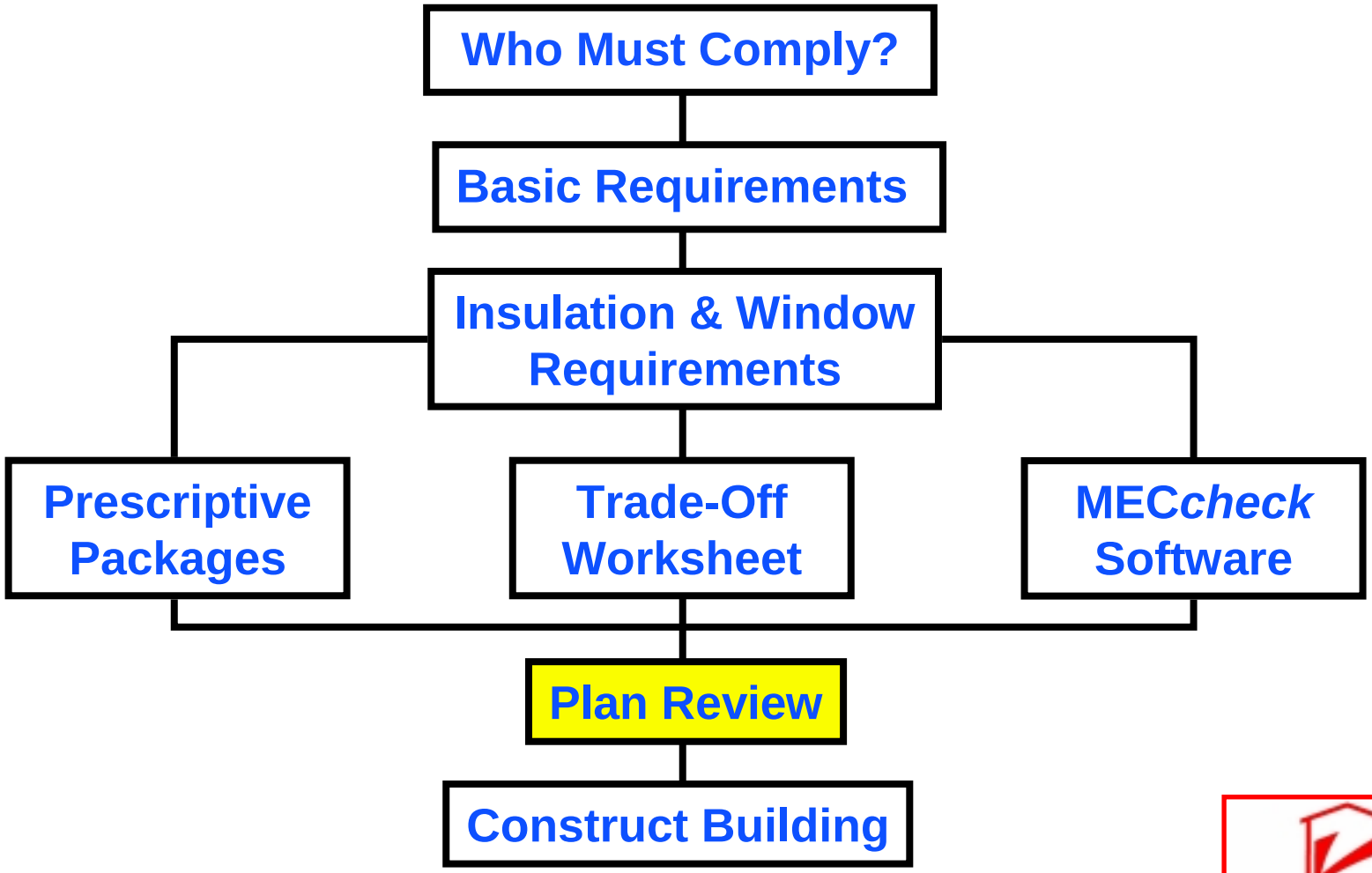
Computer Requirements

- Windows-based computer (PC)
  - 80486 processor
  - 6 MB extended RAM
  - 2MB free hard disk space
  - VGA or Super VGA monitor
  - Microsoft-compatible mouse (recommended)
  - Windows® 95, 98, 2000 or NT

Software Steps

- Choose your building location and whether it is a single-family or multifamily building
- Select the code year from the Options menu
- Create a building description
  - Enter building component information
- Add a high-efficiency equipment trade-off (if applicable)
- Save your building description and create a report

Compliance Path



Plan Check

- Verify plans comply with basic requirements
- Verify plans comply with insulation and window requirements
- Initiate Field Inspection Checklist

Field Inspection

- Foundation inspection
- Framing inspection
- Insulation inspection
- Final inspection